



RunControl

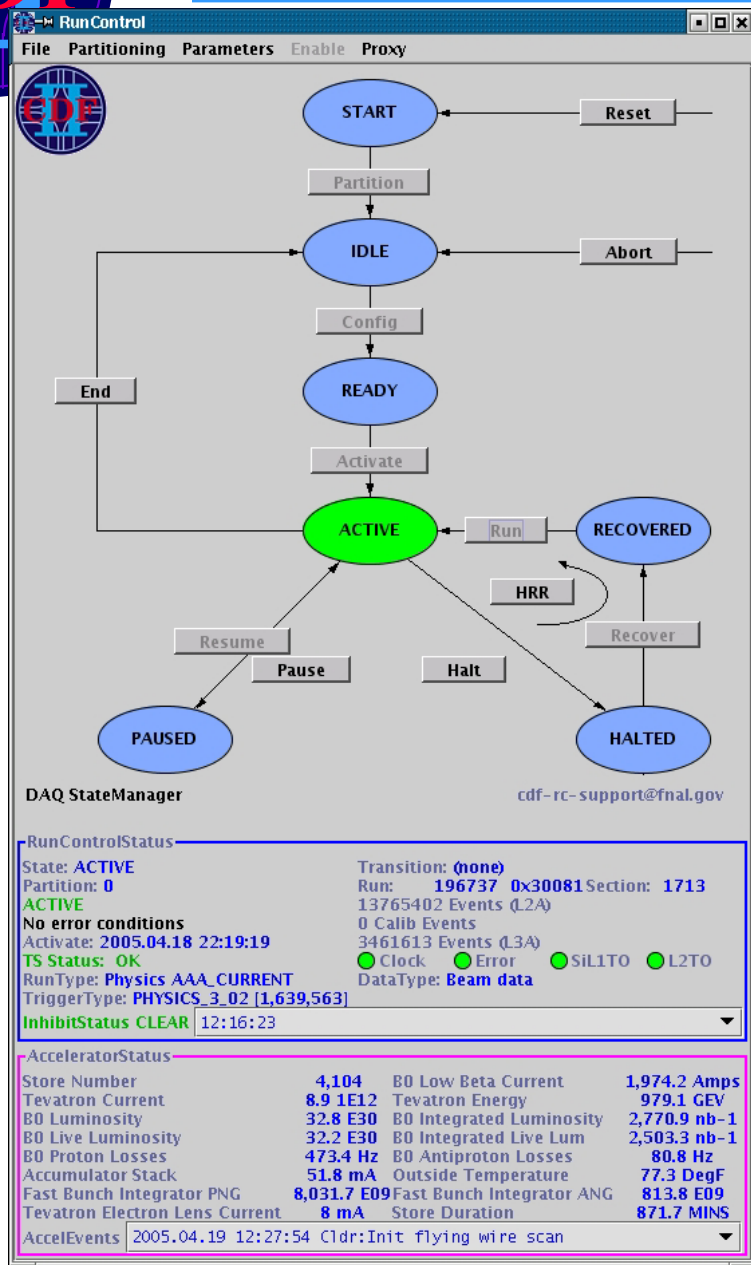
W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

How to start, configure
and operate
CDF RunControl



Run Control, main window

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Main Run Control Window:
Includes State Manager,
Configuration pull-down menus, Run
Control Status, and Accelerator
Status panels

Start Run Control:
**setup fer
rc**
(Aces use *cdfdaq* account)

Just 3 steps to run!

1. *Select Partition*
2. *Select Configuration*
3. *Initiate Transitions to
get to Active State*

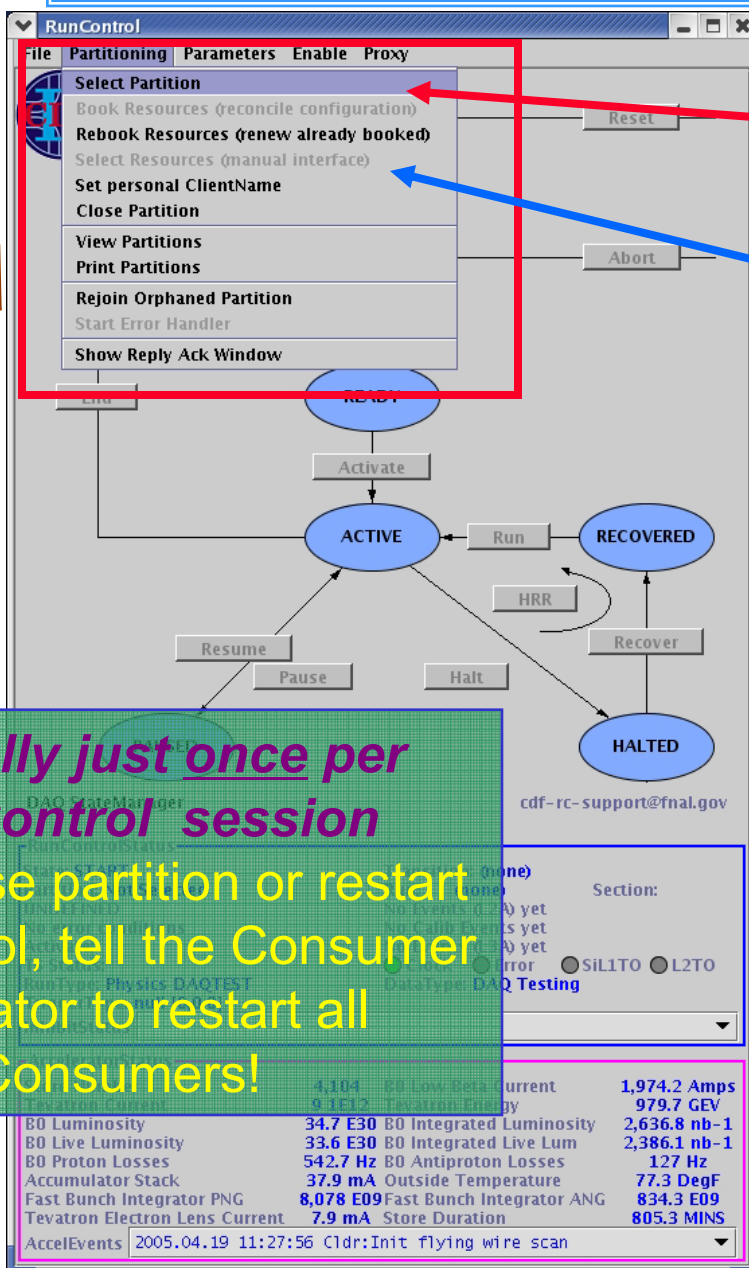
You're Running!



Step 1

Select Partition

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Select partition

Select or view
resources manually
(via GUI)
(enabled after partition selected)

Each RunControl Session must
allocate one Partition

Each front-end crate belongs to
no more than one Partition

Partitions allow resource locking
and prevent collisions between
different sessions via the
ResourceManager

Normally just once per
RunControl session

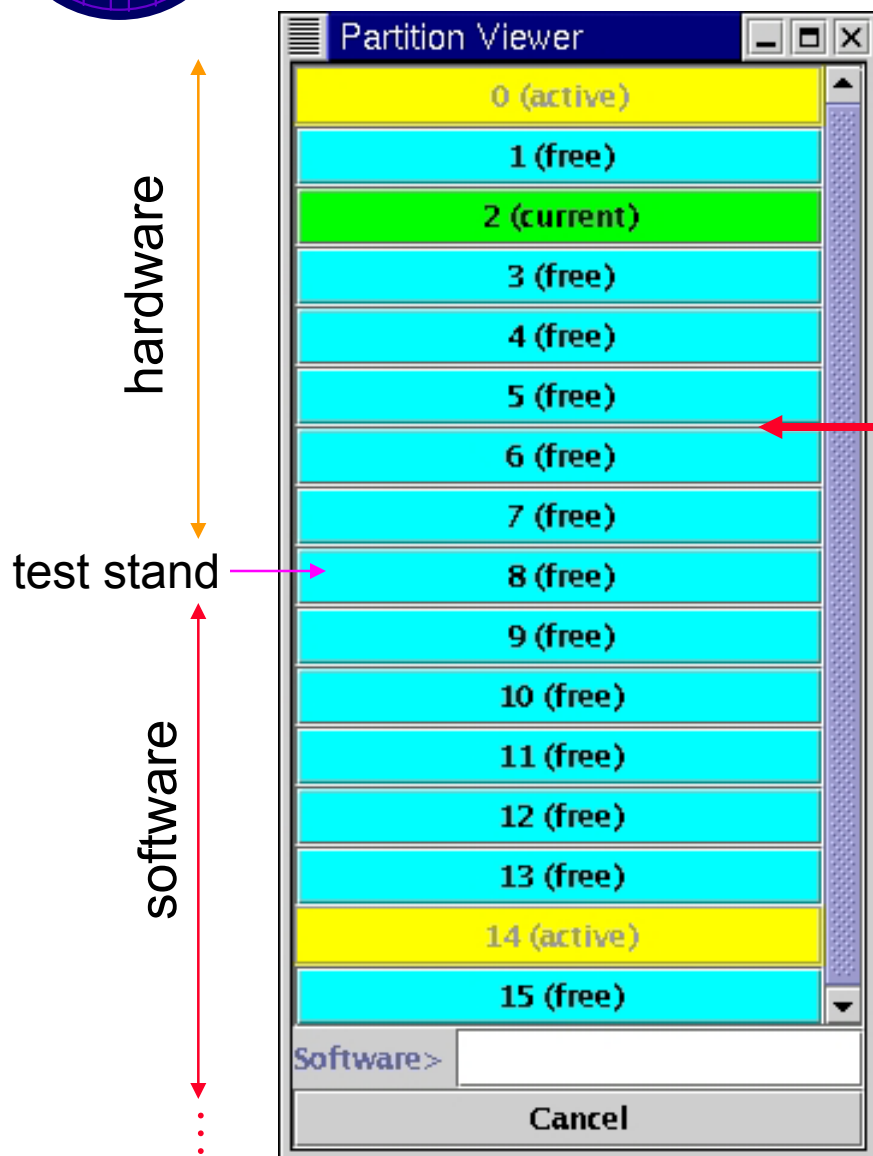
If you close partition or restart
RunControl, tell the Consumer
Operator to restart all
Consumers!



Partition Selector

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Step 1
continued



Select Partition:

- Cyan is free
 - Yellow is owned by another
 - Green is yours
 - Mouse over to display owner and hardware/software status
-
- 0–7 hardware partitions
 - 8 test stand partition
 - 9–15 software partitions



Resource Selector

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CDF Resource Selector Partition 4

File	Resources	Partition
10	badgett	b0dap26.fnal.gov
10	cdftaq	b0dap30.fnal.gov
Booked resource VRB		
Released resource VRB		
Booked resource MUTR		
Released resource MUTR		
Booked resource CLC		
Booked resource L2CL		
Active partitions:		
4	badgett	b0dap26.fnal.gov
10	cdftaq	b0dap30.fnal.gov
Booked resource L2GL		

ResMgr>

CCAL	PCAL	WCAL	FCAL	COT
CALTDC	CMU	CMP	CMX	IMU
MUSC	CLC	SVX	XFT	SVT
MUTR	L1CL	L1GL	L2CL	L2GL
SCALERS	L1	L2	L3	PRESALE
VRB	INH	CALIB	TEST	

Select Resources:

- Cyan is entirely free
- Red is entirely owned by another partition
- Blue is partially owned by another partition
- Yellow is partially yours
- Green is entirely yours
- Mouse over to display owner
- Click to book/unbook; Right-click for more info, details

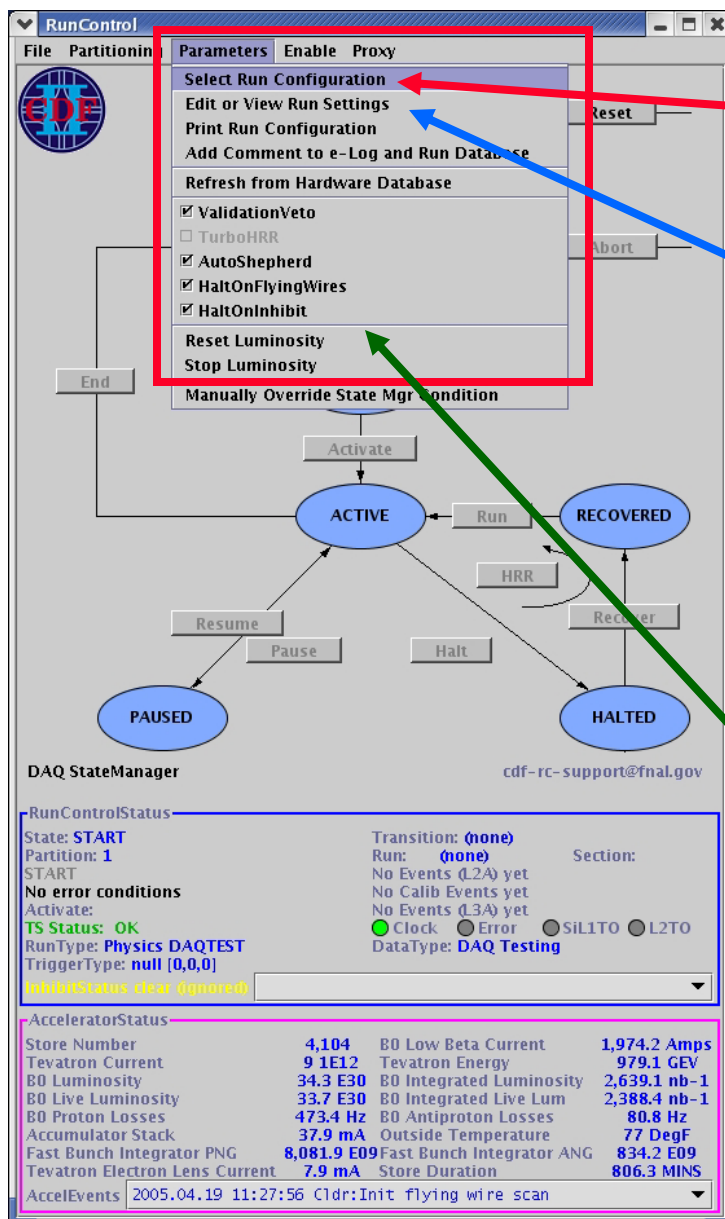


Selecting a RunConfiguration

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Step 2

After selecting a configuration, you're ready to initiate transitions and take a run!



Select predefined run configuration

Edit or view run configuration



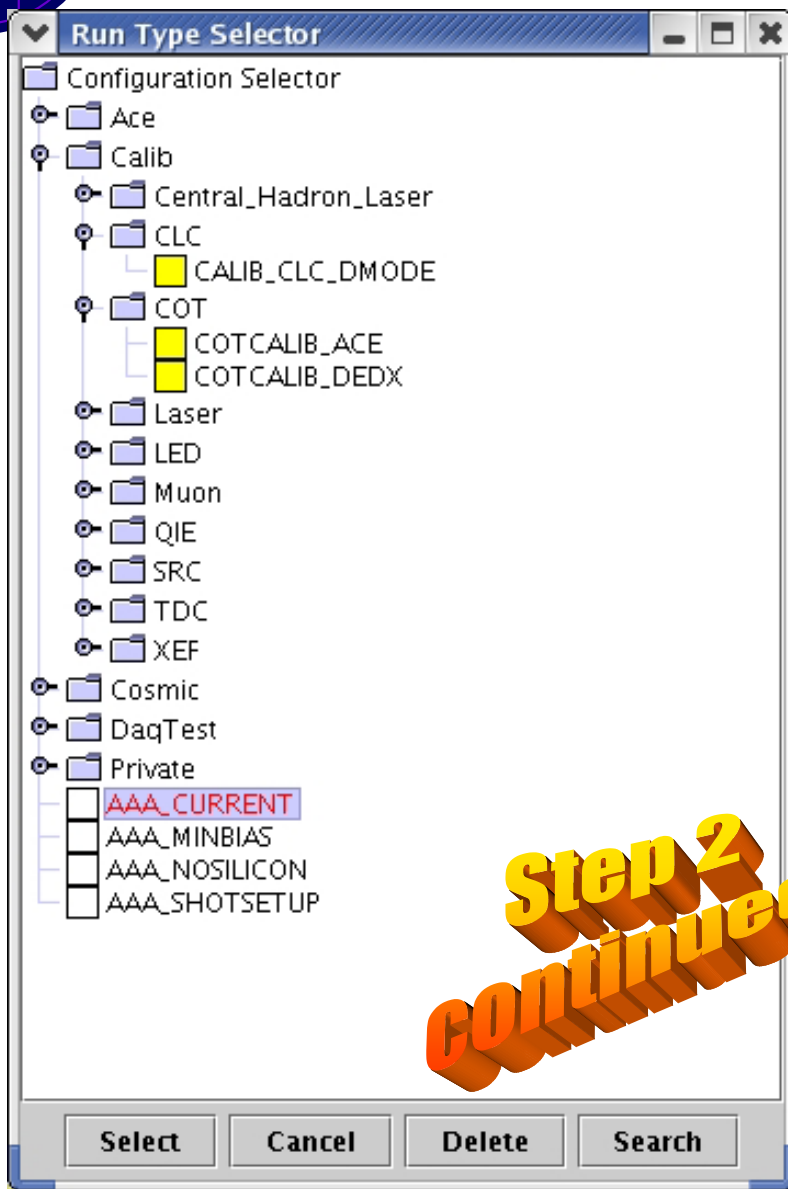
Frank sez:
"This is the
ace's most
important duty!"

Reset or stop
luminosity counters
at beginning and end
of stores -- *only if
automatic reset fails!*



Run Configuration Selector

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Select from predefined run configurations

- Ace directory contains all physics and test runs for the Ace, and is maintained by Ops Managers
- Cosmic directory for Cosmic Ray runs
- Calib directory contains calibration configurations, and is maintained by component experts in subdirectories
- Other directories for private testing purposes

Or create your own configuration!



RunSettings Window, standard

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Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers Data Type LookArea TapeOption Inhibits CalibrationJobSet

Expert: ☒ UseFred ☒ UseSrc ☒ UseScaler ☒ UseTM ☐ UseM2
☒ UseSlowControl ☐ MyronMode ☐ L1Early ☐ IgnoreError ☐ Ig...
☐ EnableFP ☐ DisableCrates ☐ DisableL1Calib ☐ StartOn80 ☐ Sv396Mode ☐ IgnoreBC ☒ DacFromHdb
☒ LoadDacs ☐ LoadQIEFRAM ☐ LoadEtAlgo ☐ LoadEtTable

RunType: **Physics** TriggerType: PHYSICS_3_06 [1,683,585]
SvxSet: SVX_NO_PEDS CalorCalibSet: (none)
Output: ☐ Ethernet(SoftEvb) ☒ VRB(HardEvb) ☐ HEvb2a ☐ HEvb2b ☒ RunNumber ☒ DiagnosticBank ☐ ExtraDBanks ☒ ReadoutLists
L1 Mode: ☒ Standard (Fred) ☐ Calib Fixed Period ☐ Calib External Trig ☐ Calib SVX ☐ Calib Continuous ☐ Software
L2 Mode: ☐ Auto L2 Accept ☐ Auto L2 ALT ☐ Auto L2 Reject ☒ L2 Processors
L2 Decision: ☒ Pulsar ☐ Pulsar B L2 Enable: ☒ Pulsar ☐ Pulsar B
L3 SubFar... ☐ All ☐ None
Output 1: ☒ 1 ☒ 2
Output 2: ☒ 3 ☒ 4
Output 3: ☒ 5 ☒ 6
Output 4: ☒ 7 ☒ 8
Output 5: ☒ 9 ☒ 10
Output 6: ☒ 11 ☒ 12
Output 7: ☒ 13 ☒ 14
Output 8: ☒ 15 ☒ 16

Parameter	Value
Directory	
Status	16777215
NEvents	0
RunSectionInterval	50
Iteration	0
PauseInterval	0
TsCode	0
Calorimeter	

“Edit or View Run Settings”
from main RunControl “Parameters” pull-down menu

Consumer Selection (calibration run types only for now)

Front end crate selection
Move to left to include
or right to exclude

Aces should know all options on this window

Global DAQ RunType

Trigger Table, coupled

CalorCalibSet, when Plug source, LED, Xenon run types

SVX Set, when SVX is used
Usually FIBTEST

Consumer Selection
(calibration run types only for now)

Front end crate selection
Move to left to include
or right to exclude



Run Settings, expert options

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09-Aug-2005

Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers Data Type LookArea TapeOption Inhibits CalibrationJobSet

Include All Cards
Refresh from Database
Change Database Connection
Close

Text Version
Validate
Compare

☒ Enable Expert Options
Save
Save as...
Delete

☒ UseSrc ☒ UseScaler ☒ UseTM ☐ UseTM2 ☒ UseLevel3Mana... ☒ UseErrorHandling
☐ MyronMode ☐ L1Early ☐ IgnoreError ☐ IgnoreBusy ☐ IgnoreXtrp ☐ IgnoreSvt
☐ DisableCrates ☐ DisableL1Calib ☐ StartOnB0 ☐ SvX396Mode ☐ IgnoreBC ☒ DacFromHdb
☐ LoadQIEFRAM ☐ LoadEtAlgo ☐ LoadEtTable

TriggerType: PHYSICS_3_06 [1,683,585]
CalorCalibSet: (none)

☒ VRB(HardEvb) ☒ HEvb2a ☐ HEvb2b ☒ RunNumber ☒ DiagnosticBank ☐ ExtraDBanks ☒ ReadoutLists

L1 Mode: ☒ Standard (Fred) ☐ Calib Fixed Period ☐ Calib External Trig ☐ Calib SVX ☐ Calib Continuous ☐ Software

L2 Mode: ☐ Auto L2 Accept ☐ Auto L2 ALT ☐ Auto L2 Reject ☒ L2 Processors

L2 Decision: ☒ Pulsar ☐ Pulsar B L2 Enable: ☒ Pulsar ☐ Pulsar B

L3 SubFar... ☐ All ☐ None

Output	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Output 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output 8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Parameter	Value
Directory	
Status	16777215
NEvents	0
RunSectionInterval	50
Iteration	0
PauseInterval	0
TsCode	0
CalibPipe	0
CalibInterval	3

Consumers

< Chosen All Choices >

Edit

<< Add <<

>> Remove >>

Crates

< Chosen All Choices >

Edit

<< Add <<

>> Remove >>

CCAL_00

CCAL_01

CCAL_02

CCAL_03

CCAL_04

CCAL_05

CCAL_06

CCAL_07

CCAL_08

CCAL_09

BEAMMON

BSCQIEPED

CESCALIB

CESCALIB_INT

CLCCALIB

CLCCALIB_ROOT

COTCTI

COTCTT

FLASHPED

FLASHPED_AA

FLASHPED_BB

CAL_PULSER_01

FCAL_00

PCAL_SOURCE_00

SVT_PULSER_08

SVT_PULSER_09

TEST_CAL_01

TEST_CES_00

TEST_CLIENT_00

TEST_L2PULSER_TED

TEST_L2PULSER_01

Expert options can be enabled from the *File* pull-down menu

Many expert options are triggered by the selection of other options or the addition of crates

You may be asked to take special runs, e.g. **MyronMode** with **L1Early**, or without **ReadoutLists**, which are only available in the expert options



Trigger Inhibits

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RunControl &
RunConfiguration
09-Aug-2005

Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers Data Type LookArea TapeOption Inhibits CalibrationJobSet

Expert: ☒ UseFred ☒ UseSrc ☒ UseScaler ☐ UseTM2 ☒ UseLevel3Mana... ☒ UseFrontHandler
☒ UseSlowControl ☐ MyronMode ☐ L1Early ☐ IgnoreError ☐ IgnoreBusy ☐ IgnoreXtrp ☐ IgnoreSvt
☐ EnableFP ☐ DisableCrates ☐ DisableL1Calib ☐ StartOnB0 ☐ SvX396Mode ☐ IgnoreBC ☒ DacFromHdb
☒ LoadDacs ☐ LoadQIEFRAM ☐ LoadEtAlgo ☐ LoadEtTable

RunType: Physics TriggerType: PHYSICS_3_06 [1,683,585]
SvxSet: SVX_NO_PEDS CalorCalibSet: (none)

Output: ☐ Ethernet(SoftEvb) ☒ VRB(HardEvb) ☒ HEvb2a ☐ HEvb2b ☒ RunNumber ☒ DiagnosticBank ☐ ExtraDBanks ☒ ReadoutList

L1 Mode: ☒ Standard (Fred) ☐ Calib Fixed Period ☐ Calib External Trig ☐ Calib SVX ☐ Calib Continuous ☐ Software
L2 Mode: ☐ Auto L2 Accept ☐ Auto L2 ALT ☐ Auto L2 Reject ☒ L2 Processors
L2 Decision: ☒ Pulsar ☐ Pulsar B L2 Enable: ☒ Pulsar ☐ Pulsar B

L3 SubFar... ☐ All ☐ None

Output	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Value	16777215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Directory
Status
NEvents
RunSectionInterval
Iteration
PauseInterval
TsCode
CalibPipe
CalibInterval

<Chosen

Edit

<< Add <<
>> Remove >>

0 HADRON_TIMING_00
0 IMU_00
0 IMU_01
0 INHIBITS_00
0 L2PULSAR_TED
0 LEVEL1_CAL_00
0 LEVEL1_CAL_01
0 LEVEL1_CAL_02
0 LEVEL1_CAL_03
0 LEVEL1_CAL_04

<Chosen

0 INHIBITS_00

0 L2PULSAR_TED

0 LEVEL1_CAL_00

0 LEVEL1_CAL_01

0 LEVEL1_CAL_02

0 LEVEL1_CAL_03

0 LEVEL1_CAL_04

Inhibits normally used only during physics (colliding beam) runs, otherwise set IgnoreInhibit to true

Inhibit sources are tied to the crates and components you have chosen, and are selected automatically

Inhibits cause data taking to stop: watch event rates, RunControl display and main InhibitDisplay

In an emergency, you may have to disable misbehaving inhibit signals from the main InhibitDisplay GUI **before the run is activated**

To control the inhibit system, you must have the INHIBIT_00 (b0inh00) crate in your configuration



Trigger Inhibit on RunControl

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09-Aug-2005

RunControlStatus

State: ACTIVE
Partition: 3
ACTIVE
No error conditions
Activate: 2005.04.18 22:19:19
TS Status: OK
RunType: Physics AAA_CURRENT
TriggerType: PHYSICS_3_02 [1,639,563]
InhibitStatus: SET 16:19:15 SVX00 Trip SVX01 Trip

Transition: (none)
Run: 196737 0x30081 Section: 1561
12607711 Events (L2A)
0 Calib Events
3159972 Events (L3A)
● Clock ● Error ● SiL1TO ● L2TO
DataType: Beam data

AcceleratorStatus

Store Number	4,104	B0 Low Beta Current	1,974.2 Amps
Tevatron Current	9.0 1E12	Tevatron Energy	979.7 GEV
B0 Luminosity	36.8 E30	B0 Integrated Luminosity	2,586.4 nb ⁻¹
B0 Live Luminosity	36.8 E30	B0 Integrated Live Lum	2,337.9 nb ⁻¹
B0 Proton Losses	427.3 Hz	B0 Antiproton Losses	138.6 Hz
Accumulator Stack	34.1 mA	Outside Temperature	79.5 DegF
Fast Bunch Integrator PNG	8,102.3 E09	Fast Bunch Integrator ANG	840.9 E09
Tevatron Electron Lens Current	7.9 mA	Store Duration	781 MINS

AccelEvents 2005.04.19 10:27:54 Cldr:Bgn colliding physics

In this case, the Inhibit is **SET**, indicating data taking has stopped

Click on the pop-up to get a history of trips

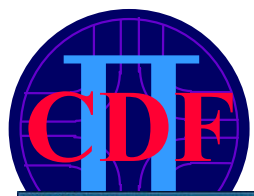
The guilty components here are TRIP:SVX00 and TRIP:SVX01

RunControl crate: **INHIBITS_00** *b0inh00*

Jonatron sez:
"Selecting the
Inhibitions is the Ace's
most important duty!"



This is the *new* Inhibit system
from
...December 2003...



New Inhibit System Control

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RunControl &
RunConfiguration

InhibitDisplay

Help LastUpdate: 2005.08.08 17:53:04 Inhibit Clear Partition Number: 0 Node: b0dap73.fnal.gov RunStatus State: ACTIVE Run: 202452

InhibitStatus

B Field	BMU East Trip	BMU HV:PC	BMU West Trip	BSC: PC	BSU HV:PC	CENTRAL HV:iFix	CES HV:PC	CES HV:iFix	CES LV:iFix
CES Trip	CLC,MP Trip	CLC: PC	CMP HV:PC	CMP HV:iFix	CMP Trip	CMU HV:PC	CMU HV:iFix	CMU00 West Trip	CMU01 East Trip
CMX HV:PC	CMX HV:iFix	CMX Trip	COT Control	COT HV:PC	COT HV:iFix	COT LV	COT00 Trip	COT01 Trip	COT02 Trip
COT03 Trip	COT04 Trip	COT05 Trip	COT06 Trip	COT07 Trip	CPR,CCR Trip	CPR,CCR: PC	CSP CCU HV:PC	CSP CSX:iFix	Flying Wire
Hadron LED	IMU HV:iFix	IMU LV:iFix	ISL HV:iFix	ISL00 Trip	ISL01 Trip	ISL02 Trip	ISL03 Trip	ISL04 Trip	ISL05 Trip
ISL06 Trip	ISL07 Trip	LD00 iFix	MP: PC	Muon LV:iFix	PCAL00 Trip	PCAL01 Trip	PCAL02 Trip	PCAL03 Trip	PCAL04 Trip
PCAL05 Trip	PCAL06 Trip	PCAL07 Trip	PCAL08 Trip	PCAL09 Trip	PCAL10 Trip	PCAL11 Trip	PES LV:iFix	PLUG HV:iFix	RP: PC
SVX HV:iFix	SVX00 Trip	SVX01 Trip	SVX02 Trip	SVX03 Trip	SVX04 Trip	SVX05 Trip	SVX06 Trip	SVX07 Trip	TOF HV:iFix
TOF LV:iFix	TOF00 Trip	TOF01 Trip	TOF02 Trip	TSU HV:PC	VMC PoweriFix	Xenon Off			

Inhibit Muon LV:iFix

InhibitSignal Channel

Name Muon LV:iFix

Channel 141

ComponentList CMU,CMX,CMP,BMU

OnlineFlag true

Description Muon Low Voltage from iFix

GlobalFlag false

Muon LV:iFix is enabled

Muon LV:iFix is not inhibited

Muon LV:iFix is in the partition

Disable Cancel

InhibitDisplay Help

Green	source is enabled and not asserting inhibit
Red	source is enabled and is asserting inhibit
Yellow	source is disabled; the black lettering indicates the user manually disabled it
Yellow	source is disabled; the gray lettering indicates that component is not in the partition
Gray	source is offline and cannot currently be used

- Enable and disable inhibits after **Config** but before **Activate** transition, while in the **Ready** state

RunControl crate: **INHIBITS_00** *b0inh00*



Data Type Selection

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RunControl &
RunConfiguration

09-Aug-2005

Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers

Expert:

- ☒ UseFred
- ☒ UseSlowControl
- ☐ EnableFP
- ☒ LoadDacs

RunType: Physics

SvxSet: SVX_NO_PEDS

Output: ☐ Ethernet(SoftEvb) ☒ VRB(HardEvb) ☒ HEvb2a ☐ HEvb2b ☒ RunNumber ☒ DiagnosticBank ☐ ExtraDBanks ☒ ReadoutLists

L1 Mode: ☒ Standard (Fred) ☐ Calib Fixed Period ☐ Calib External Trig ☐ Calib SVX ☐ Calib Continuous ☐ Software

L2 Mode: ☐ Auto L2 Accept ☐ Auto L2 ALT ☐ Auto L2 Reject ☒ L2 Processors

L2 Decision: ☒ Pulsar ☐ Pulsar B L2 Enable: ☒ Pulsar ☐ Pulsar B

L3 SubFar... ☐ All ☐ None

Parameter	Value
Directory	
Status	16777215
NEvents	0
RunSectionInterval	50
Iteration	0
PauseInterval	0
TsCode	0
CalibPipe	0
CalibInterval	3

Consumers

< Chosen All Choices >

Edit

<< Add <<

>> Remove >>

Crates

< Chosen All Choices >

Edit

<< Add <<

>> Remove >>

WAL_06
WAL_07
XFT_FINDER_00
XFT_FINDER_02
XFT_FINDER_04
XFT_LINKER_01
XFT_LINKER_03
XFT_LINKER_05
XFT_XTRP_00

BEAMMON
BSCQIEPD
CESCALIB
CESCALIB_INT
CLCCALIB
CLCCALIB_ROOT
COTCTI
COTCTT
FLASHPED
FLASHPED_00
CAL_PULSER_01
FCAL_00
PCAL_SOURCE_00
SVT_PULSAR_08
SVT_PULSAR_09
TEST_CAL_01
TEST_CES_00
TEST_CLIENT_00
TEST_L2PULSAR_TED
TEST_LEVEL_01

Pull-down menu in Run Settings window selects data types

Select *Beam Data* only when colliding beams are in the Tevatron

Use DAQ Testing when just exercising the system

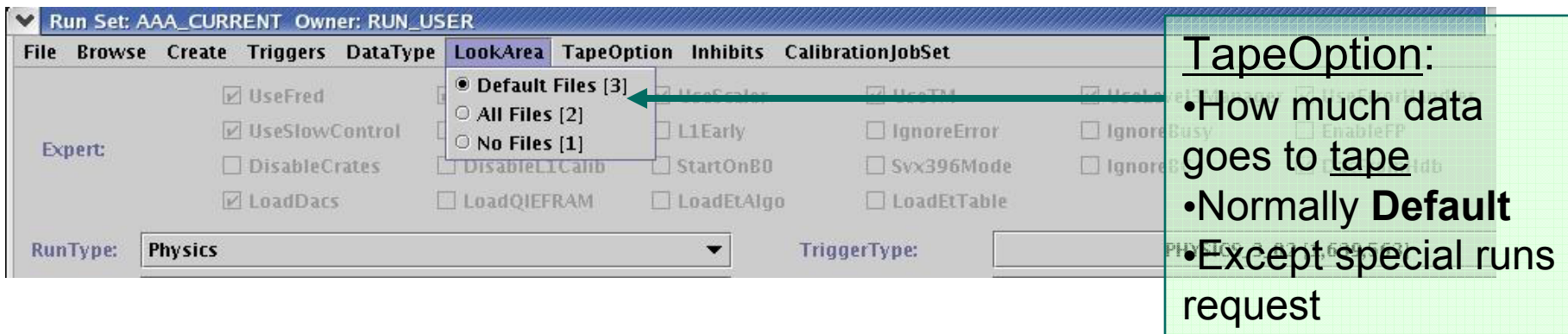
Tony sez:
"Selecting the Data Type is the Ace's most important Duty"





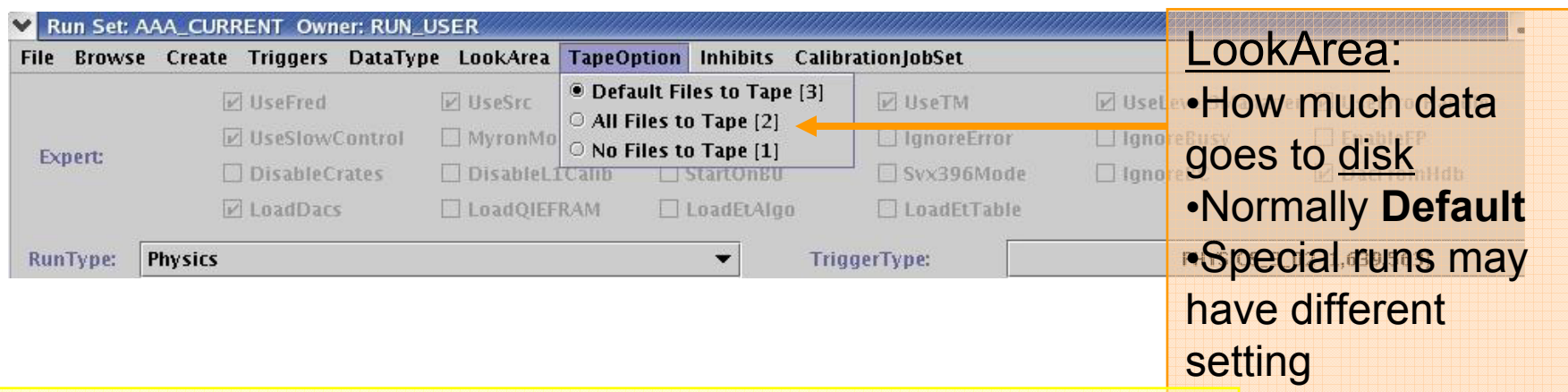
Data Storage Control

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09-Aug-2005



TapeOption:

- How much data goes to tape
- Normally **Default**
- Except special runs request



LookArea:

- How much data goes to disk
- Normally **Default**
- Special runs may have different setting

You have two ways to control the final storage disposition of the data, via *disk* or *tape*
Use non-defaults only on expert request



TriggerType Selection

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers DataType LookArea TapeOption Inhibits CalibrationJobSet

Expert: ☒ UseFred ☒ UseSlow ☐ EnableFP ☐ LoadDacs ☐ DisableCrates ☐ LoadQIEFRAM ☐ DisableL1Calib ☐ LoadEtAlgo ☐ IgnoreError ☐ StartOnB0 ☐ LoadEtTable ☐ UseTM ☐ IgnoreBusy ☐ Svx396Mode ☒ UseLevel3Man... ☐ IgnoreXtrp ☐ IgnoreBC ☒ UseErrorHandler ☐ IgnoreSVT ☒ DacFromHdb

RunType: Physics TriggerType: PHYSICS_3_06 [1,683,585]

SvxSet: SVX_NO_PEDS ColorCalibSet: (none)

Output: ☐ Ethernet(SoftEvb) ☒ VRB(HardEvb) ☒ HEvb2a ☐ HEvb2b ☒ RunNumber ☒ DiagnosticBan... ☐ ExtraDBanks ☒ ReadoutLists

L1 Mode: ☒ Standard (Fred) ☐ Calib Fixed Period ☐ Calib External Trig ☐ Calib SVX ☐ Calib Continuous ☐ Software

L2 Mode: ☐ Auto L2 Accept ☐ Auto L2 ALT ☐ Auto L2 Reject ☒ L2 Processors

L2 Decision: ☒ Pulsar ☐ Pulsar B L2 Enable: ☒ Pulsar ☐ Pulsar B

L3 SubFar... ☐ All ☐ None

Output	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Parameter	Value
Directory	
Status	16777215
NEvents	0
RunSectionInterval	50
Iteration	0
PauseInterval	0
TsCode	0
CalibPipe	0
CalibInterval	3

Consumers

All Choices>

Edit

<< Add <<

>> Remove >>

Crates

<Chosen

All Choices>

Edit

<< Add <<

>> Remove >>

WAL_06
WAL_07
XFT_FINDER_00
XFT_FINDER_02
XFT_FINDER_04
XFT_LINKER_01
XFT_LINKER_03
XFT_LINKER_05
XFT_XTRP_00

BEAMMON
BSCQIEPED
CESCALIB
CESCALIB_INT
CLCCALIB
CLCCALIB_ROOT
COTCTI
COTCTT
FLASHPED
FLASHPED_00
CAL_PULSER_01
FCAL_00
PCAL_SOURCE_00
SVT_PULSAR_08
SVT_PULSAR_09
TEST_CAL_01
TEST_CES_00
TEST_CLIENT_00
TEST_L2PULSAR_TED
TEST_LEVEL3_01

Select *coupled*
TriggerTable here
for normal physics
running

Select decoupled
tables here for
testing, cosmics,
minbias, l2torture
Decoupled table
specify only L1 and
L2

Coupled tables are
fully specified from
Level 1, Level 2
through Level 3

Synonyms:
TriggerType =
TriggerTable =
PhysicsTable



Coupled Trigger Tables

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

Your Ops Manager will tell you which one to use and which are for special test runs (see white board)

RunType: Physics TriggerType: PHYSICS_3_02 [1,639,563]
SvxSet: SVX_NO_PEDS CalorCalibSet: (none)

Click here for coupled physics tables

Trigger Type Selector L1+L2+L3 Coupled

Select a *single* row of parameters from the list of choices below

PHYSICSTABLE	TAG	L2	L3	DESCRIPTION	CREATED
PHYSICS_3_01	2	618	559	PHYSICS_3_01 v2	2005.03.26
PHYSICS_3_01	1	615	557	PHYSICS_3_01 v1	2005.03.24
PHYSICS_3_02	1	639	563	PHYSICS_3_02 v1	2005.04.11
PHYSICS_HIGHLUM_3_01	1	617	558	PHYSICS_HIGHLUM_3_01 1	2005.03.26
PHYSICS_HIGHLUM_3_02	1	640	562	PHYSICS_HIGHLUM_3_02 v1	2005.04.11
PHYSICS_TEST_3_01	10	596	547	PHYSICS_TEST_3_01 10	2005.02.22
PHYSICS_TEST_3_02	7	636	561	PHYSICS_TEST_3_02 v7	2005.04.01
PHYSICS_TEST_3_02	1	629	560	PHYSICS_TEST_3_02 v3	2005.03.30
TEST_CSL_MB_XING_PUFF	1	641	564	TEST_CSL_MB_XING_PUFF for CSL stress test	2005.04.15

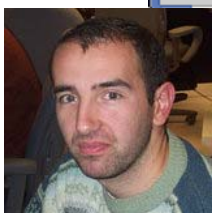
select None Cancel

Coupled Trigger Tables are used for real physics (colliding beams) running

You will often see PHYSICS_TEST_... tables that experts may request to run at the end of stores

Guillermo sez:

"Selecting a TriggerTable that does not crash Level 3 is the Ace's most important duty!"





Decoupled Trigger Tables

W. Badgett
RunControl &
RunConfiguration
-2005

Run Set: AAA_CURRENT Owner: RUN_USER

File Browse Create Triggers DataType LookArea TapeOption Inhibits CalibrationJobSet

Expert: ☒ List L2 Tag Sets
☒ List L3 Tag Sets
☒ Level 1,2 Special Trigger Types (decoupled from L3)
☐ DisableCrates ☐ DisableL1Calib ☐ StartOnBU
☒ LoadDacs ☐ LoadQIEFRAM ☐ LoadEargo ☐ LoadETable

RunType: Physics TriggerType: PHYSICS_3_02 [1,639,563]
SvxSet: SVX_NO_PEDS CalorCalibSet: (none)

☒ UseTM ☒ UseLevel3Manager ☒ UseErrorHandler
☐ IgnoreError ☐ IgnoreBusy ☐ EnableFP
☐ Svx396Mode ☐ IgnoreBC ☒ DacFromHdb

Click here for decoupled trigger tables

Trigger Type Selector L1+L2...L3 Decoupled

Select a row of parameters from each of the two lists below

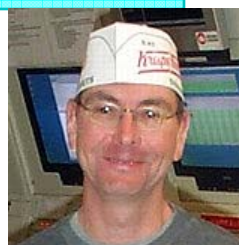
PHYSICSTABLE	TAG	L2	CREATED	L3	DESCRIPTION	CREATED
COSMICS	15	619	2005.02.22	549	RECO_51 with Pulsar patches	2005.02.24
COSMICS	14	503	2004.06.30	548	ALL_RECO with Pulsar patches	2005.02.24
COSMICS_3TRACK	1	540	2004.11.03	540	NULL Table v3 5.1.3_level3c	2005.02.08
COSMICS_NOTRACKS	9	620	2004.05.04	539	L3_RECO_51_PS5 v1 Rebuilt with Aseet/Mirceas patc...	2005.02.08
COSMICS_NOTRACKS	9	467	2004.05.04	538	L3_PASS_ALL_RECO_51 v1 Rebuilt with Aseet/Mirceas...	2005.02.07
COSMICS_VADIM	2	537	2004.10.20			
COSMICS_VADIM_3TRACK	1	542	2004.11.04			
L2_TORTURE	16	623	2004.05.04			
L2_TORTURE	16	595	2004.05.04			
L2_TORTURE	16	565	2004.05.04			
L2_TORTURE	16	561	2004.05.04			
L2_TORTURE	16	466	2004.05.04			
L2_TORTURE_TEST_MINI_MINI	16	544	2004.11.16			

None is a valid option when using the calibration trigger

Lots of decoupled trigger table options, due to combinatorics of unspecified Level 3 paths

Select

Greg Sez: "Selecting the correct Trigger Table that doesn't break Fred is the Ace's most important duty!" (plus bringing Greg Krispy Kreme doughnuts to make him very, very fat)





CrateEditor

W. Badgett
RunControl &
RunConfiguration
09 April 2005

Crate: CCAL_00

File Browse Create Triggers

CCAL_00

3 SMXREADOUT_00
4 SMXREADOUT_01
5 SMXREADOUT_02

16 ADMEM_00
18 ADMEM_01
20 ADMEM_02

17 ADMEM_03
19 ADMEM_04

21 ADMEM_05

CES,1
<Chosen All Choices>
Edit
<< Add <<
>> Remove >>

CEM,1
<Chosen All Choices>
Edit
<< Add <<
>> Remove >>

CHA,1
<Chosen All Choices>
Edit
<< Add <<
>> Remove >>

One ADMEM card excluded from readout

CrateEditor shows which cards will be read out, grouped by bank

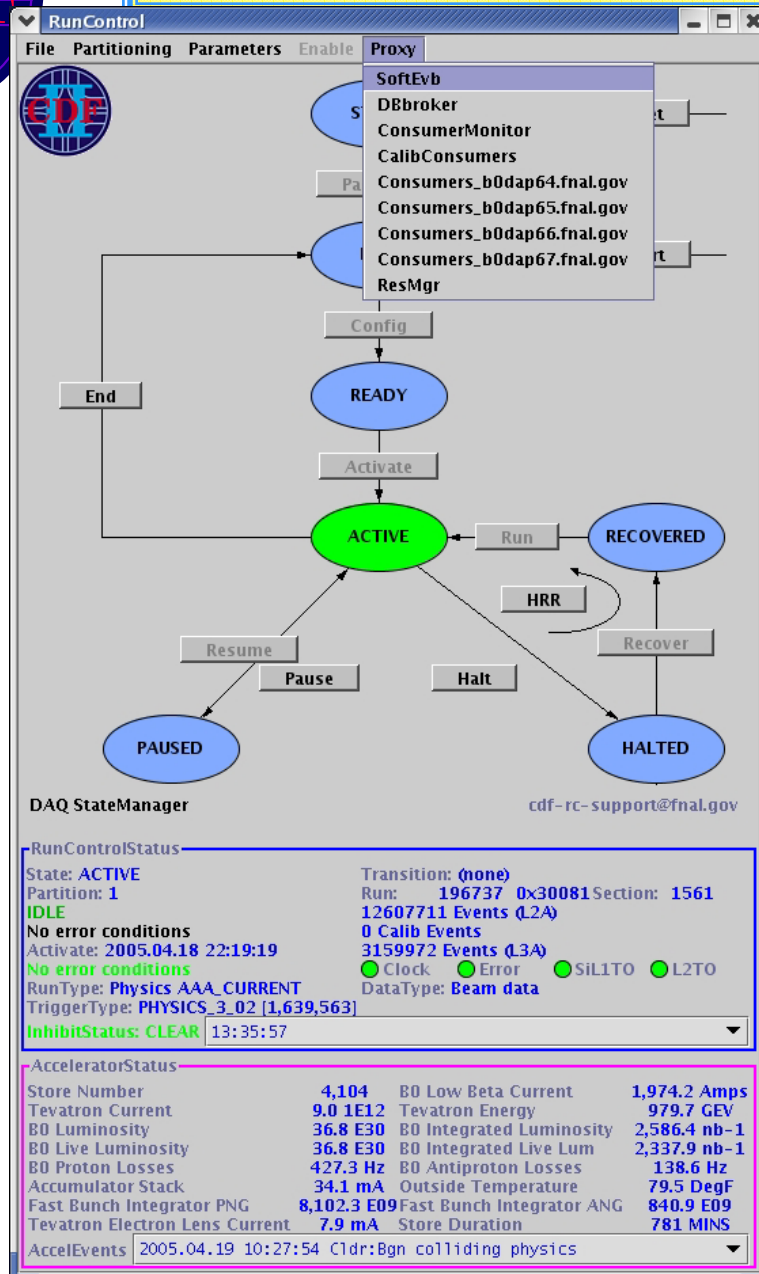
Cards can be removed from readout, but only in **emergencies**
Notify expert *immediately* if you remove a card!

Component expert? Select card and press *Edit* for more info on the card
Use caution when changing database connection, be sure to change it back to *RUN_USER*



Proxy Control Menu

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005



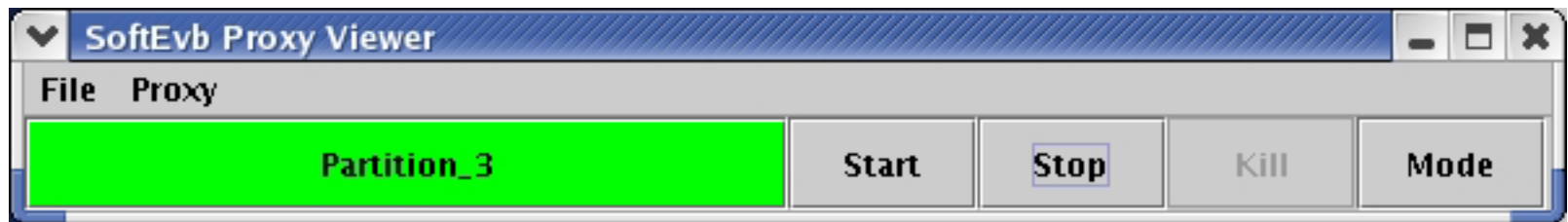
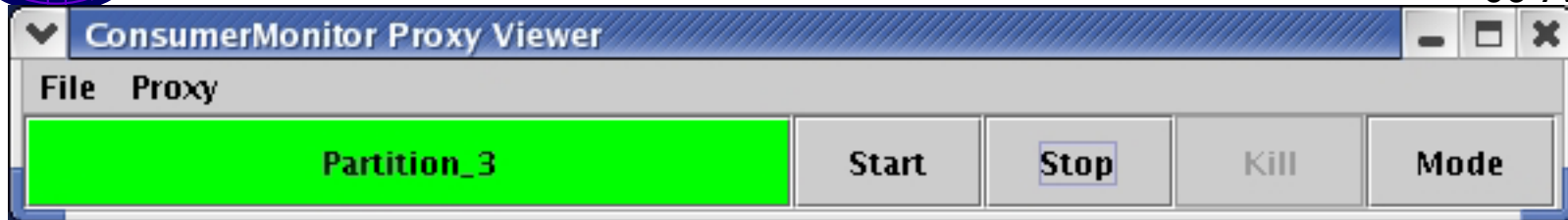
The Proxy gives you control over remote data acquisition processes:

- Software Event Builder
- Database Broker (for SVX)
- Consumer Monitor
- Calibration Consumers
- Resource Manager
- Physics Consumers (to be implemented)



SoftEvb Proxy Viewer

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005



If you don't get responses from the Software Event Builder during transitions, then check the SoftEvb Proxy, and stop and/or restart if needed

Status colors:

- Green: Up and running
- Cyan: not running

Click on main button for detailed information



CalibConsumer Proxy

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

A screenshot of a software window titled "CalibConsumers Proxy Viewer". The window has a menu bar with "File" and "Proxy". Below the menu bar is a table with 10 rows and 5 columns. The first column contains consumer names, and the other four columns contain "Start", "Stop", "Kill", and "Mode" buttons. The row for "CESCALIB_0" is highlighted in green, and its "Start" button is selected. The other rows have a cyan background.

File	Proxy				
	QJE_0	Start	Stop	Kill	Mode
	CESCALIB_0	Start	Stop	Kill	Mode
	BSCQJE_0	Start	Stop	Kill	Mode
	QJEMINIPLUG_0	Start	Stop	Kill	Mode
	POTQJE_0	Start	Stop	Kill	Mode
	COTCTT_0	Start	Stop	Kill	Mode
	TOFQJE_0	Start	Stop	Kill	Mode
	LED_0	Start	Stop	Kill	Mode
	XEF_0	Start	Stop	Kill	Mode

Use the Calibration Consumer Proxy to see if your calibration consumer is still running



ResourceManager Proxy

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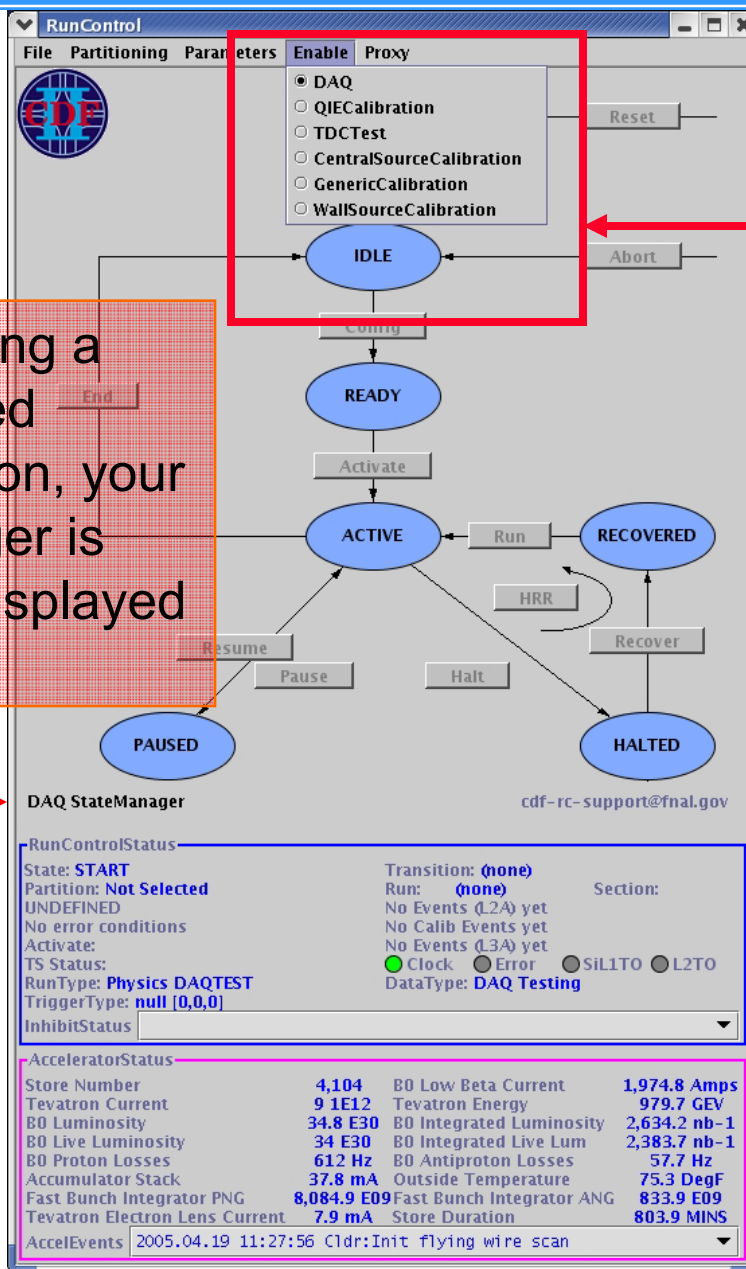
File	Proxy	Start	Stop	Kill	Mode
	ResMgr_Prd	Start	Stop	Kill	Mode
	ResMgr_Int	Start	Stop	Kill	Mode
	ResMgr_Dev	Start	Stop	Kill	Mode
	DBMon_Prd	Start	Stop	Kill	Mode
	DBMon_Int	Start	Stop	Kill	Mode
	DBMon_Dev	Start	Stop	Kill	Mode
	DBMon_OffPrd	Start	Stop	Kill	Mode
	HMon_Prd	Start	Stop	Kill	Mode
	HMon_Int	Start	Stop	Kill	Mode
	HMon_Dev	Start	Stop	Kill	Mode
	SVX_BootLoader	Start	Stop	Kill	Mode
	MerlinWarningLogger	Start	Stop	Kill	Mode

Having a problem with Sticky Partitions?
Try restarting the ResMgr_Prd
You can't hurt anything!



State Manager Selection

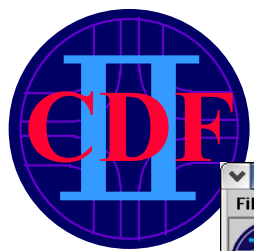
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RunConfiguration
09-Aug-2005



Select State Manager:

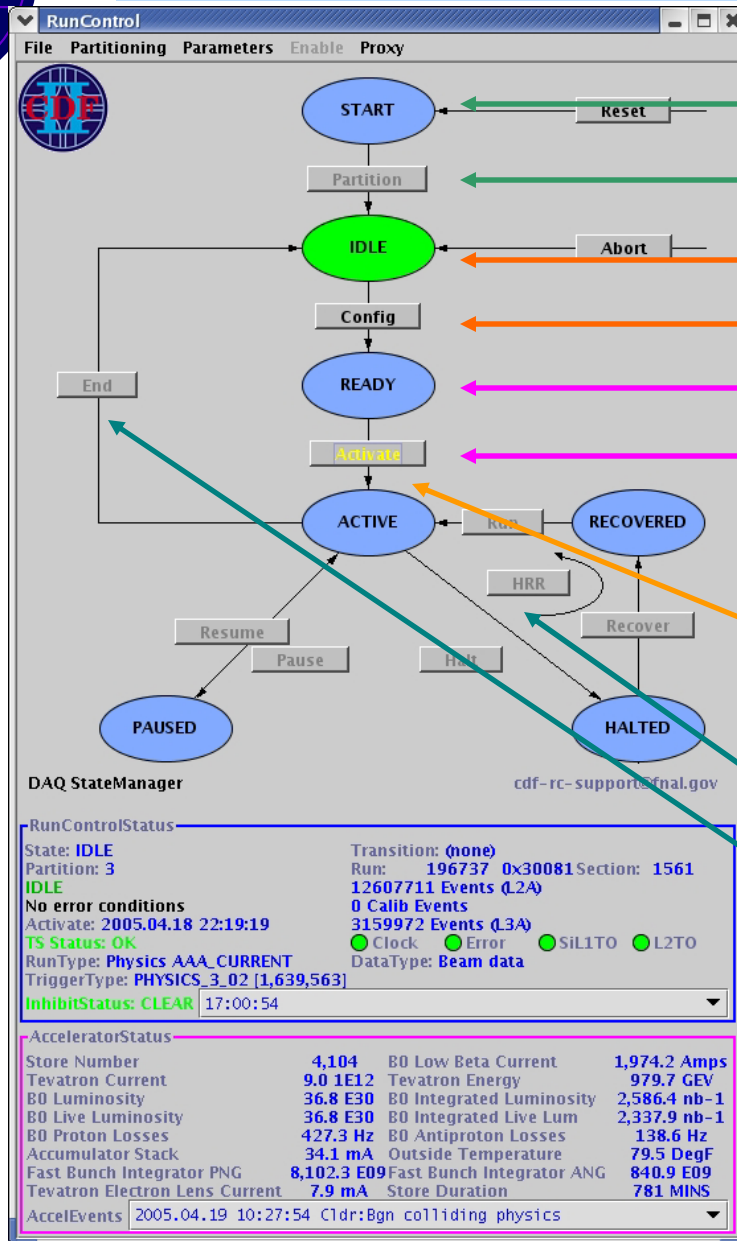
- Usually **DAQ**, default on startup
- **GenericCalibration** for calibrations unless specific menu item for given run type: e.g., **QIE Calibration**
- Source and TDC testing are primarily for experts

The State Manager determines the flow of control when cycling through runs



Transition Sequencing

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At **Start** state, select all desired clients and *Partition*

At **Idle** state, configuration must be fixed, then *Config*

At **Ready** state just about prepared to take data, then *Activate*

Note use of *click-ahead* (shift key plus mouse click) so that Activate will automatically engage when it becomes available

To fix problems, try ***Halt Recover Run***
When Active and ready to finish run, ***End***

Abort and ***Reset*** always available to get you out of sticky situations
Use sparingly!



Transitions

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09-Aug-2005

- **Partition**: Select front end crates and clients for the run; configure trigger and return crosspoints
- **Config/Setup**: Configure crates and clients with info that could change run by run, without adding or subtracting RC clients (slowest transition)
- **Activate**: Final step to enable system to take data (fast)
- **End**: Normal end of run, produces end of run summaries
- **Abort**: Return to Idle when no other option available
- **Pause/Resume**: Briefly stop data taking (HV trips, flying wires, inhibits)
- **Halt/Recover/Run**: Fast system error recovery, first option to use when an error occurs during data taking
- **Reset**: Return to Start state from Idle, or when no other options are available



Calibration State Managers

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09-Aug-2005

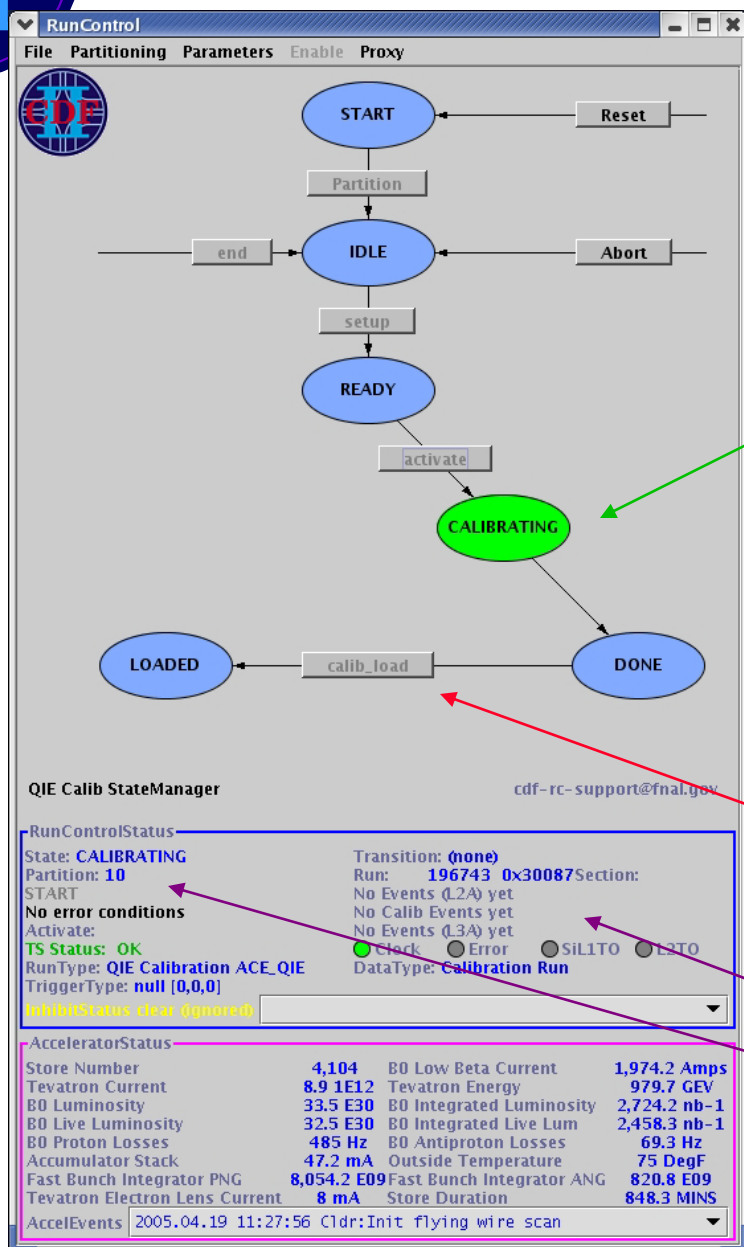
QIE Calibration State Manager

Calibrating: Transitory “fall-through” state, will drop to *Done* when all front end crates are complete

Know where Calibration Consumer log files are kept:
~cdfdaq/consumers/log

CalibLoad special option to do full download of AdMem FRAMs, by expert request only

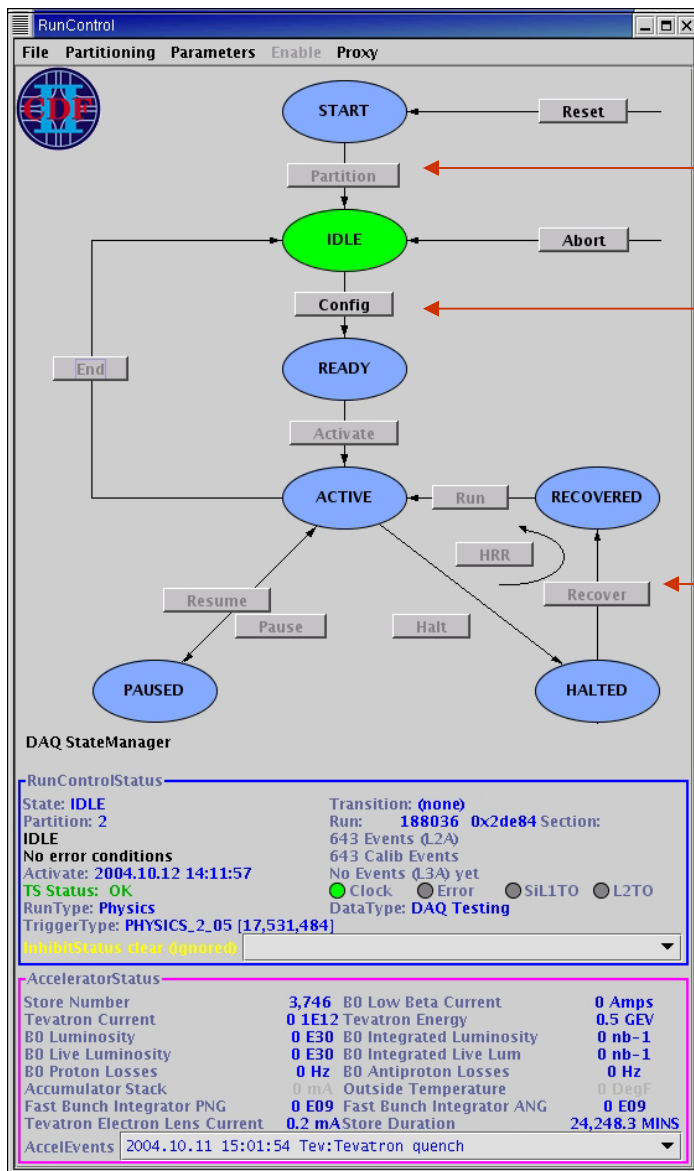
QIE Calibration may be done in software partition, no hardware triggers are generated





RunControl in action

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09-Aug-2005



Partition: choose front end crates and other virtual clients to participate in the run

Config: configure hardware and software for desired run typeh

HaltRecoverRun: quickly reset the entire DAQ and trigger system for fast recovery, minimize dead time; Normally use express HRR button

StateManager

- User initiates *transitions* between different *states*
- Goal is to stay in the *Active* state until run is complete, taking recovery actions as necessary



Sample Transition Errors

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RunConfiguration
09-Aug-2005

A screenshot of a Windows-style error window titled 'Invalid'. The window has a menu bar with 'File' and a timestamp '2005.04.19 12:25:43'. The main text area contains the following messages:

```
Strange (but not necessarily fatal) Run Configuration
Using crate LEVEL2_CAL_04 without corresponding LEVEL
Not using all available L3 SubFarms (3fff,ffff)
Crate CCAL_03 missing from run
Crate CCAL_04 missing from run
Crate LEVEL1_CAL_04 missing from run
Crate PCAL_08 missing from run
```

At the bottom of the window are three buttons: 'Close', 'To Top', and 'To Bottom'.

During your Run Control session, you will sometimes see warning messages pop up. This example tells you are missing some important crates during a beam physics run

Do **NOT** ignore any of these messages!!!

If you do not understand a message, contact the appropriate expert immediately



Reply & Acknowledgments Window

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RunConfiguration
09-Aug-2005

Partition 2:	
b0tsi00	b0puls01
b0tsi02	b0tsi01
csl	errlog
sevb	slow

- Which clients have not yet been sent a transition?

- Which clients have received a transition message, but have not yet responded to the transition?

- Which clients have responded successfully to the transition?

- Which client is in error?

This window indicates the transition status of clients:

- **Butter yellow:** RC has *not* sent transition yet
- **Margarine yellow:** RC has sent transition, *waiting* for acknowledgment
- **Green:** Client sent successful acknowledgment
- **Red:** Client reported an error during transition – check error log

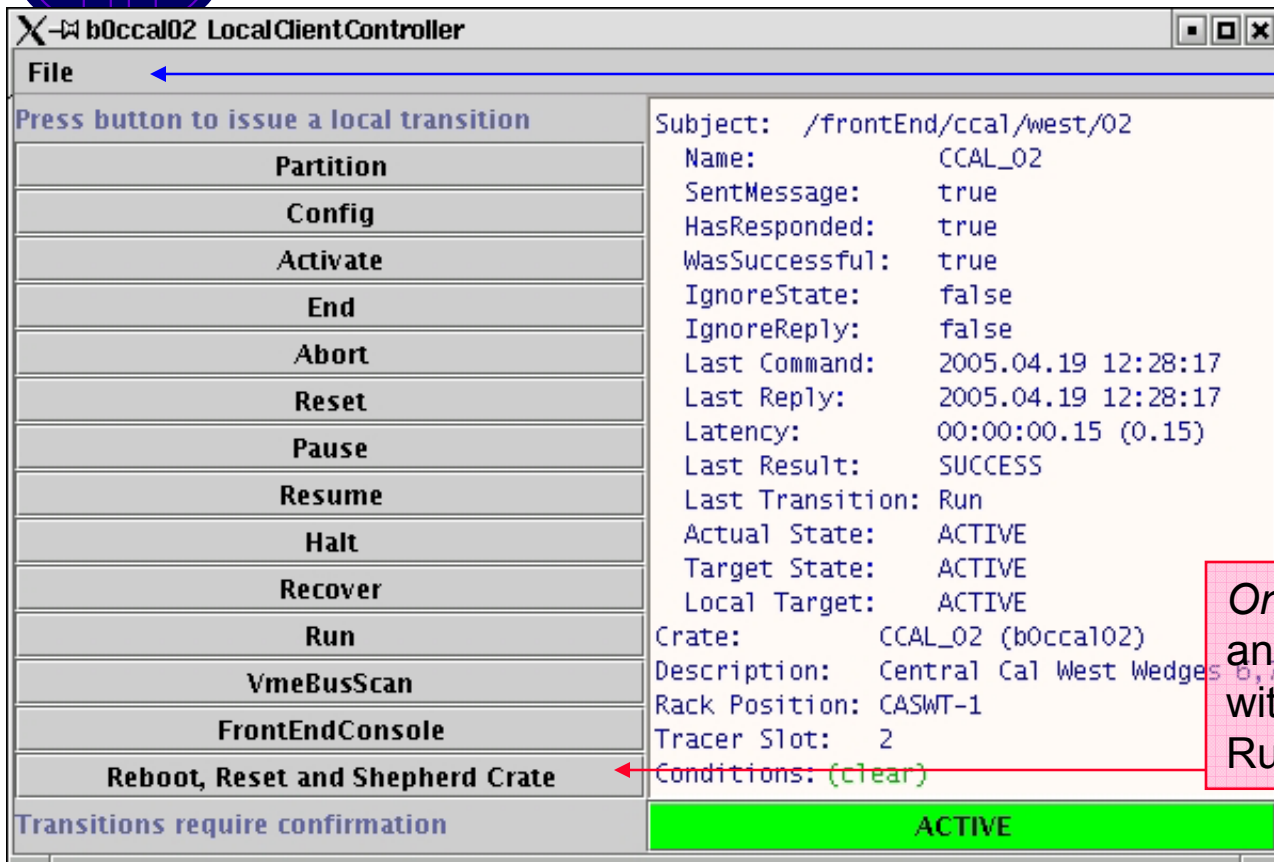
Click on the client button for more info and the client's
LocalClientController

Learn the Colors!



LocalClientController

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09-Aug-2005



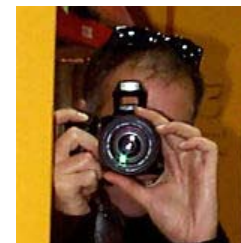
File menu gives you access to the contents of the configuration messages sent to the client

You can send single transitions to a single crate by hand here

One-Touch shepherding: reset and bring crate back into line with other Run Control clients



Allows you to **shepherd** individual clients through the transitions
Can be used if one client out of many fails a transition
Be careful to retain the same configuration!!

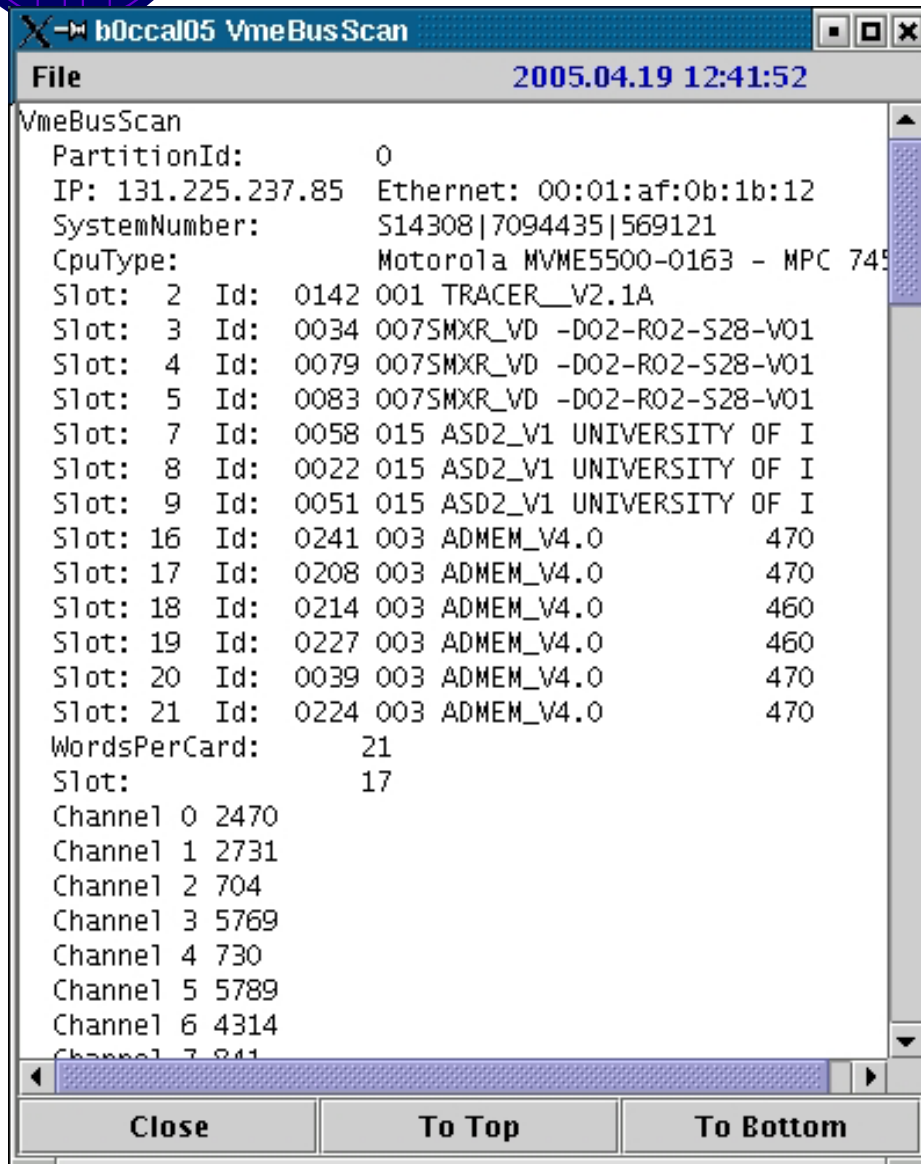


Avi sez: "We need a mouse-click database!"



VmeBusScan Button

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RunConfiguration
09-Aug-2005



Choosing VmeBusScan
from the Local Controller
window returns a scan of all
cards in the front end crate

Useful for verifying the
presence and basic
functionality of readout
cards



FrontEnd Crates Control i/o

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RunConfiguration
09-Aug-2005

Ethernet port:

- vxlogin
- RunControl transitions
- Status messages
- Software Event Builder

TCP/IP 100 Mb/s

Serial port:

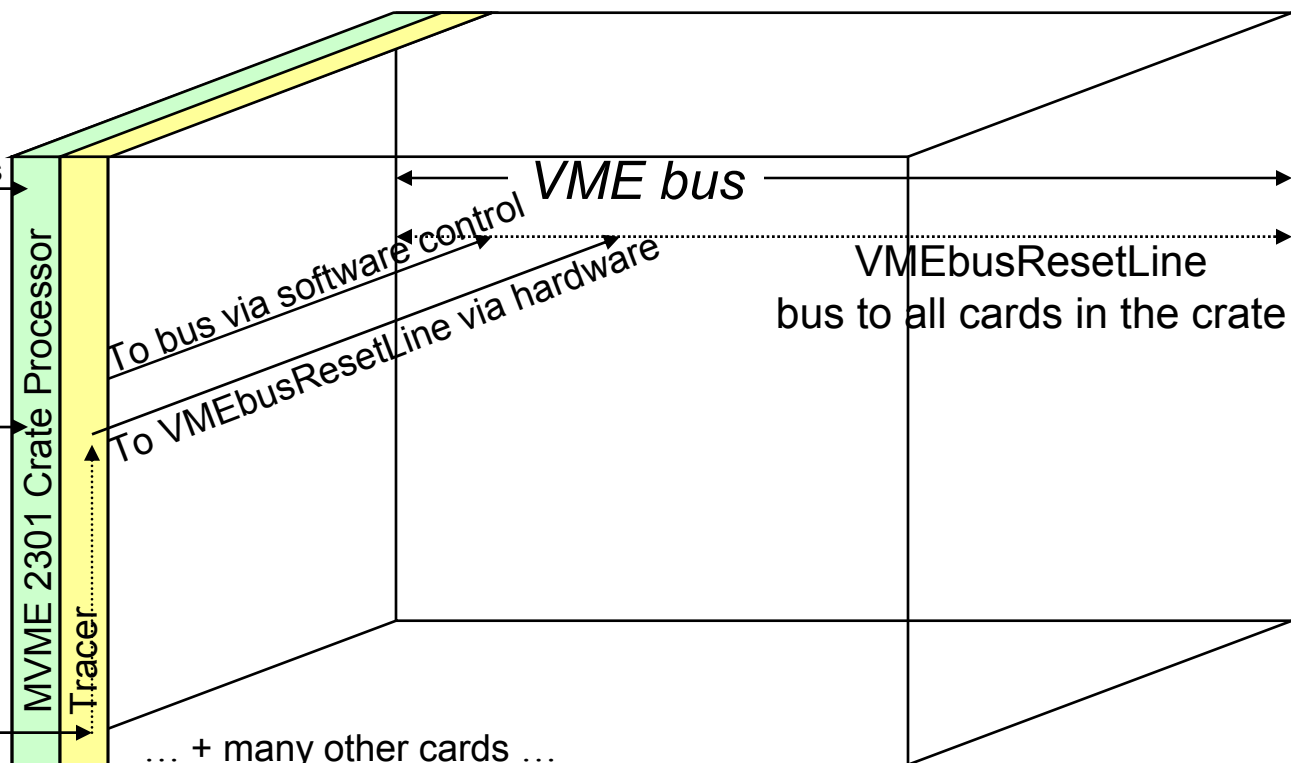
- minicom* on *b0dap10*
- FrontEndConsole from RunControl LocalClientController

serial line 9600 baud

Reset line:

unidirectional pulse

- reset_crates
- Reboot, Reset, Shepherd... from RunControl LocalClientController
- originates at *b0res00* and *b0res01* crate



From three into many...

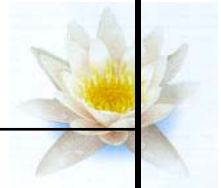
* To be replaced with *vxcom* command available from any node



The Five Fold Reset Path

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RunControl &
RunConfiguration
09-Aug-2005

<u>Command</u>	<u>CPU Reset</u>	<u>VME Crate Reset</u>
Reboot, Reset and Recover Crate From the RunControl LocalClientController; uses reset line and software (VISIONdemo)	yes	yes
reset_crate After <i>setup fer</i> from unix shell; proceeds via reset line to tracer and then on to VME bus	yes	yes
VISIONdemo, 9, 10 After <i>setup fer</i> from unix shell, or after logging into crate with vxlogin or minicom; proceeds via software on to the VME bus; TDCs may prefer this	yes	yes
vxboot After <i>setup fer</i> from unix shell; logs into crate processor and reboots via software	yes	no
reboot After logging into crate with vxlogin or minicom, equivalent to vxboot	yes	no





CPU vs. Crate Reset

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RunControl &
RunConfiguration
09-Aug-2005

- CPU Reset
 - Clears up any software problems or heap corruption
 - Nicer to SmartSockets *rtserver*
 - Does not touch any other card in the crate
- VME Bus Crate-wide Reset
 - Also reboots CPU
 - Resets all cards in the crate via the VME bus reset line
 - Often needed by readout cards, e.g. TDCs are a popular candidate to benefit from VME bus reset
 - May leave dangling connection to SmartSockets *rtserver*
- For persistent hardware problems, neither reset may be successful
 - Important to contact appropriate expert as soon as possible in this case, there may be a serious hardware malfunction
 - Expert may indicate that a power cycle is needed – do only under the advice of an expert



LocalClientController Details

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

CAL_PULSER_01 Local Client Controller

File

Press button to issue a local transition

Partition
Config
Activate
End
Abort
Reset
Pause
Resume
Halt
Recover
Run
VmeBusScan
FrontEndConsole
Reboot, Reset and Shepherd Crate

Transitions require confirmation

Subject: /frontEnd/cal/pulser/00

Name: CAL_PULSER_01

SentMessage: true

HasResponded: false

WasSuccessful: false

IgnoreState: false

IgnoreReply: false

Last Command: 2003.10.06 16:44:06

Last Reply: 2003.10.06 16:43:52

Latency: 00:00:16.15 (16.15)

Last Result: SUCCESS

Last Transition: HRR

Actual State: ACTIVE

Target State: HALTED

Local Target: HALTED

Crate: CAL_PULSER_01 (b0puls01)

Description: Cal Pulser Crate

Rack Position: 1RR18D-2

Tracer Slot: 2

Conditions: (clear)

ACTIVE

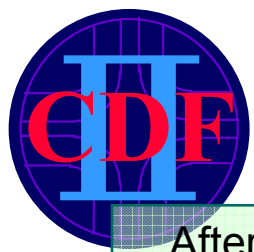
Last transition command time, from main RunControl or this individual controller

Last known state as issued from client, with time

Target state to match the global expected state from main RunControl

Local target state to match the last local transition issued from this individual controller

Presence of these buttons while *Active* indicates a VME crate which can be recovered in the middle of a run



FrontEndConsole

W. Badgett
RunControl &
RunConfiguration

00 Aug 2005



After a *Reboot*, *Reset* and *Recover Crate* command, a **FrontEndConsole** appears, showing the boot process, much like **minicom**

Reset and/or Shepherd choices:

Really issue Reboot, Reset and Shepherd Crate transition to client CAL_PULSER_01?
A valid kerberos ticket and access to b0dap10 is required for this to work!

OK, Reset & Shepherd

Cancel

Reset, no Shepherd

Shepherd, no Reset

FrontEndConsole b0cmu00

```
value = 0 = 0x0
```

```
#
```

The Shepherding process MAY NOT fix the problems you are experiencing – in this case, contact the appropriate expert; expert may indicate to cycle the power supply

Don't forget to *kticket*
A valid kerberos ticket is necessary for this feature to work
(automatic for *cdfdaq* account)

```
#
```

```
#
```

```
ld < ${CDFVME_COMMON_DIR}/server/lib/${VXB_DEST_ENV}/${VXB_DEST_ARCH}/CrateVme
```

```
value = 15235760 = 0xe87ab0
```

```
#
```

```
# Do custom startup
```

```
#
```

```
< ${CUSTOM_STARTUP}
```

VISIONdemo

FrontEndConsole uses the hardware *serial* line connected to the crate processor, just like *minicom*; if serial line is broken, you won't see the crate booting, but the reset and recovery should still proceed via the *reset* line to the Tracer

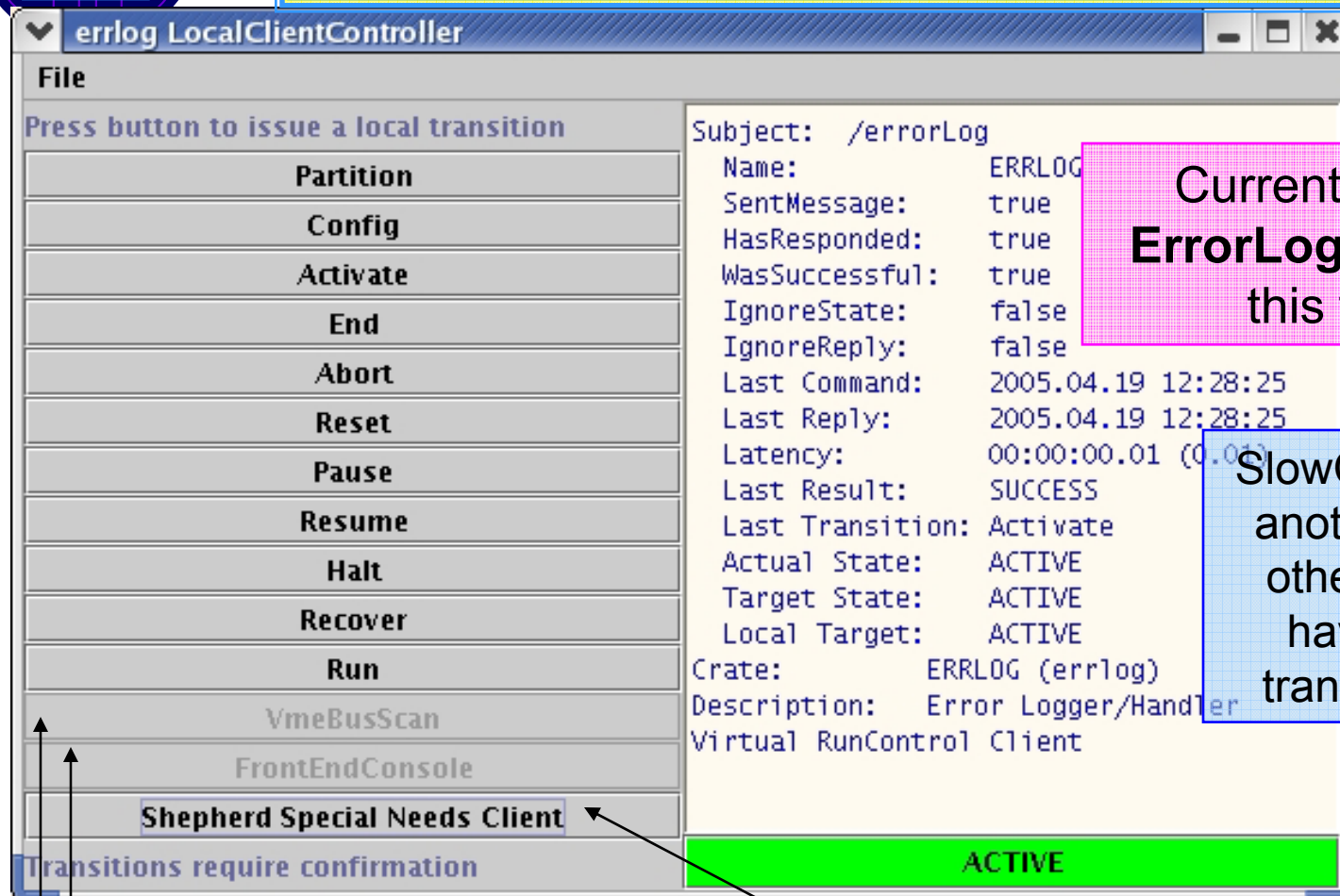
AutoScroll

NoAutoScroll



Special Needs Clients

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005



Currently only the
ErrorLogger can use
this feature

SlowControl may be
another customer;
other clients may
have individual
transitions issued

Disabled buttons indicate this is not a
VME crate

Special Needs Virtual RunControl
clients **must be restarted** per their
special instructions before shepherding



ClientMonitor

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

After issuing Recover Special Needs Client, a special logging window *ClientMonitor* will appear in lieu of a *FrontEndConsole*

```
ClientMonitor errlog
2005.04.19 12:29:21 Recovering client ERRLOG ...
2005.04.19 12:29:21 Issuing Reset
2005.04.19 12:29:22 Trying Partition
2005.04.19 12:29:27 Trying Partition
2005.04.19 12:29:28 Successful transition Partition
2005.04.19 12:29:28 Trying Config
2005.04.19 12:29:29 Successful transition Config
2005.04.19 12:29:29 Trying Activate
2005.04.19 12:29:29 Successful transition Activate
2005.04.19 12:29:29 Successfully shepherded client ERRLOG (errlog)
```

Close the FrontEndConsole and ClientMonitor windows when they are no longer needed

How a Special Needs *ClientMonitor* looks like after a successful shepherding into the *Halted* state

AutoScroll NoAutoScroll



Shepherding Status

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

- Some clients and crates should never be recovered in the middle of a run
 - <http://www-cdfonline.fnal.gov/ace2help/runControl/shepherding.html>
 - L1, L2, L3, HEVB, SEVB, CLC, CSL, Scalers (b0tsi03)
 - Function will be disabled in *LocalClientController* window
- Some front-end crates have reset line or serial line broken
 - All crates in collision hall working (check this!)
 - JDL promises to fix remaining (upstairs) crates someday
 - As long as reset line or serial line works, shepherding will work
 - ❖ although you may see warnings
 - ❖ no crate has both reset and serial lines broken



End of Run Status Box

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

Run Comments

File

Enter your name and pertinent Run informations, purpose and conditions

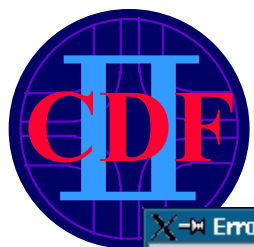
Test run only.
No colliding beams during run; no need to process run on production farm

Run: 141700 Name: badgett State: TERMINATE Enter Close

Run Status ☐ Potentially Useful, send to offline farms ☒ Definitely Bad, do not send to farms

At the end of a run you will be presented with a comment box: enter any pertinent run informations

At the end of a beam physics run, you must also decide the basic run quality. When in doubt, choose *Potentially Good*
Determines whether run is processed offline!



Error Logger

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

Error Logger receives and interprets status and error messages from front end crates and other clients

Status, Warning and Error Messages

Client errors on Run Control?
Look here for more informations

Error Messages, with
summary pane

The screenshot shows the 'Error Display' window with the title bar 'Error Display (current version = v1_34)'. The menu bar includes 'File', 'Log', 'Options', 'Tools', and 'Help'. Below the menu bar are buttons for 'Stop logging', 'Clear', and a status indicator 'AUTOMATIC HRRs enabled'. The main text area displays the following information:

```
ACTIVE DAQ cdfdaq@b0dap73.fnal.gov 12:33:49 run #: 196737 (0x30081)
```

Attention!!!. L3_REF_ERROR_HIGH_RATE Error !!!.
Level3 Reformatter detects abnormal amount of corrupted data!
We recommend:
- use reformatter decoder and find the offending crate
- try HRR, if no effect try End->ColdStart->Activate
- call appropriate FE expert (SVX pager for FIB crates)
- if FE expert is not available, try L3 pager

[MLE]
(RC) 12:27:57 Halt -> HALTED
(RC) 12:28:16 Recover -> RECOVERED
(RC) 12:28:19 Run -> ACTIVE
(MLE) b0xft04:Messenger:Apr 19, 2005 12:33:57 PM->Event 13593451: Bunchcount
(MLE) b0xft04:Messenger:Apr 19, 2005 12:33:57 PM->Runtime Error 12, Event 13593451

The 'Argument sequence' tab is selected, showing the following details for two errors:

```
Code: 0x1c070800000021 Mnemonic: L3_REF_ERROR_HIGH_RATE  
Node Name: b013pcom2.fnal.gov; Node Id: 131.225.236.189  
Process: Thread-3; PID: -1; Time: Apr 19, 2005 12:16:49 PM  
Code Line: 0; Routine: Unknown  
Parameters: 7.4074073
```

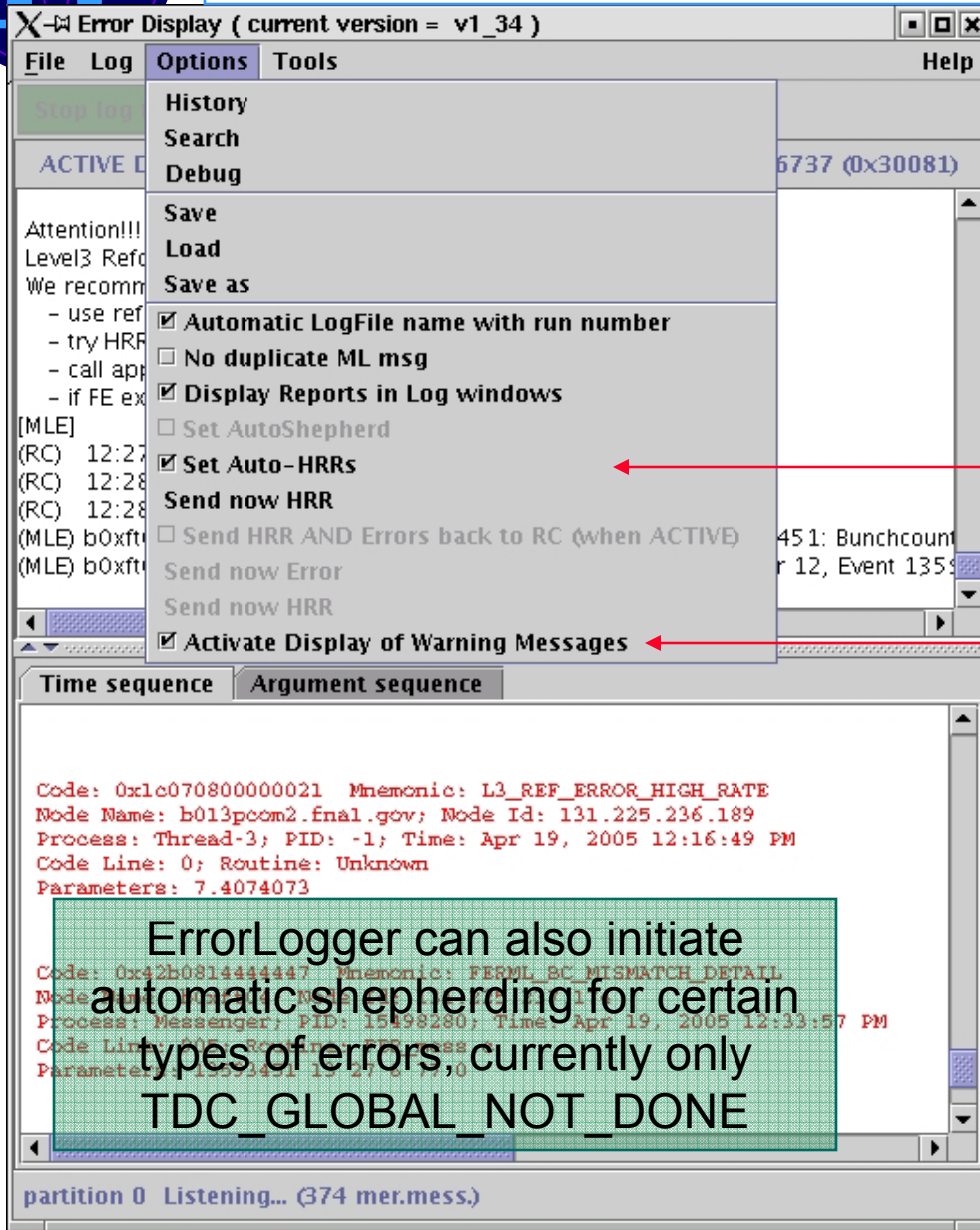
```
Code: 0x42b0814444447 Mnemonic: FERML_BC_MISMATCH_DETAIL  
Node Name: b0xft04; Node Id: 131.225.237.174  
Process: Messenger; PID: 15498280; Time: Apr 19, 2005 12:33:57 PM  
Code Line: 905; Routine: FER_mess.c  
Parameters: 13593451 13 27 6 77 0
```

The status bar at the bottom indicates 'partition 0 Listening... (374 mer.mess.)'.



Error Logger Control Options

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ErrorLogger can send transition commands to Run Control when specific problems are encountered

Enable automatic HRR here, should normally be on

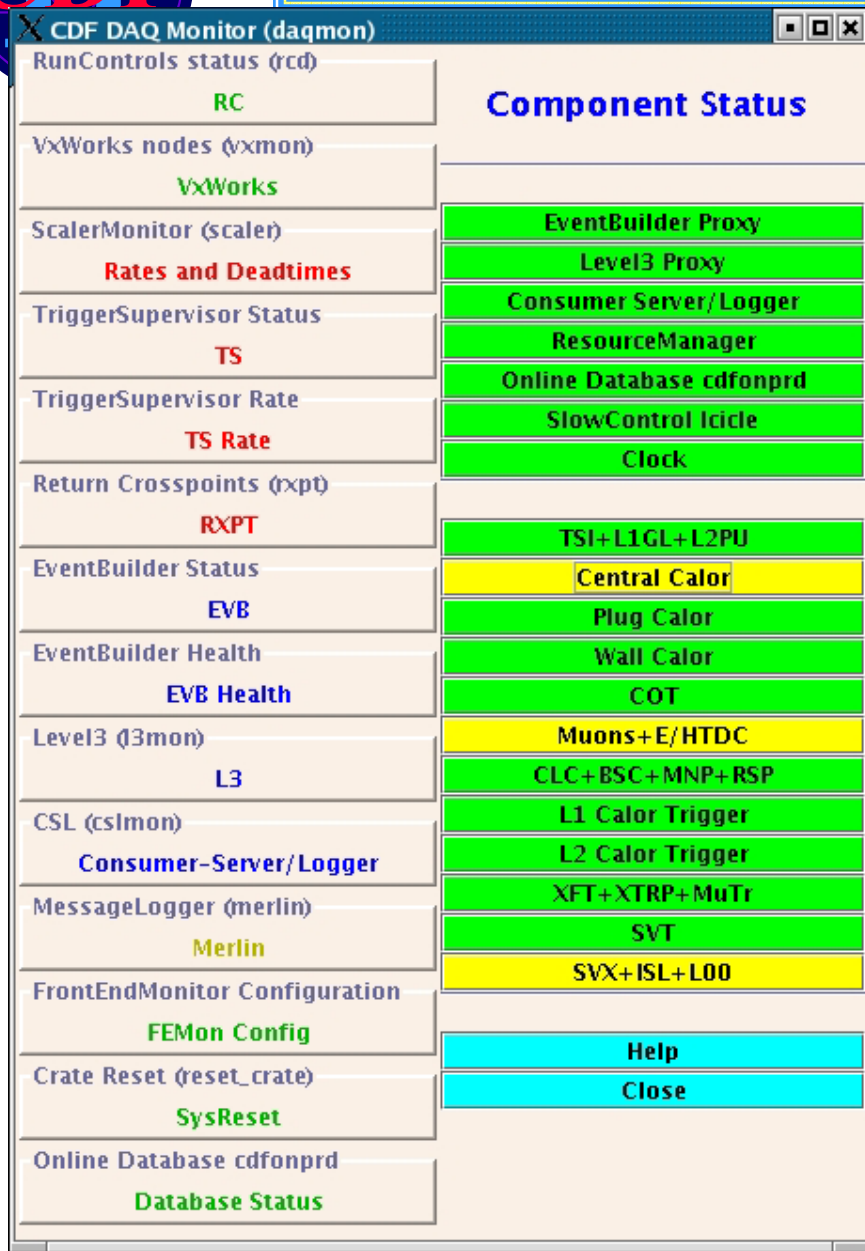
Enable warning messages here, should normally be on

ErrorLogger sends **orange** and **red** warning windows to Run Control, often with special instructions on how to recover



DaqMon

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005



Watching Run Control status is
your first line of defense
Plus, many monitoring tools are
available

Click on Launch Buttons on the
left-hand side to start monitors

DaqMon is your gateway to
many monitors, to start:
setup for
daqmon

- Provides a quick glimpse status of all systems
- Click on component status buttons on the right for more information
- Help button (new)



VxMon

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09-Aug-2005

Click on the node name for detailed information

CDF VxWorks System Monitor

19-Apr-2005 12:33:17

VxWorks Node b0tsi00 Monitor

b0tsi00 Tue Apr 19 12:33:54 CDT 2005 Partition: (undefined) State: UNKNOWN

TaskName	Entry	ID	Priority	Status	Errno	StackSize	StackCur	StackMax
tExcTask	excTask	0xff2fa0	0	PEND	0x0	7984	288	1312
tLogTask	logTask	0xff03a0	250	PEND	0x0	4992	272	352
tNetTask	netTask	0xef4b30	1	PEND	0x0	9984	240	1248
tPortmapd	portmapd	0xe689c0	1	PEND	0x3d0002	9984	608	768
tRlogind	rlogind	0xe65570	15	PEND	0x0	7984	1088	1920
tTelnetd	telnetd	0xe63090	55	PEND	0x0	7984	368	448
tRipTask	ripTask	0xe60b80	101	PEND	0x3d0002	3744	624	1520
tWdbTask	wdbTask	0xe5e9e0	3	PEND	0x0	7344	304	384
tRipTimerTask	ripTimer	0xe56ef0	100	PEND	0x0	2992	256	496
t1	VISIONserver	0xe49a70	100	PEND	0x0	19152	432	704
t2	ROBINserver	0xe448b0	100	PEND	0x0	19152	408	688
rtlm_main	rtlm_main	0xe346f0	220	PEND	0x0	19312	480	960
Messenger	FER_messenger	0xe344b0	200	RUN	0x3d0004	195648	1232	8064
rtlm_session	rtlm_session	0xdd3600	189	PEND	0x0	19984	688	1216
Mon_III	FER_monitorIII	0xbfc460	220	RUN	0x1c0001	16368	192	464
tm_SM_pol	tm_SM_pollster	0xb304c0	200	RUN	0x0	262128	304	1312
tpn_0	tm_tsEach	0xaf02a0	200	RUN	0x3d0002	262128	272	856

Boot and Run Informations

Flags: 0x0
DataSize: 0
...
TracerFifoWait: 0

HeapUsage Total Heap Size: 27322192 Current Usage: 13852368 Free: 13469824 Heap is not corrupt

Error Messages

At-a-glance summary of all front end crates in the system

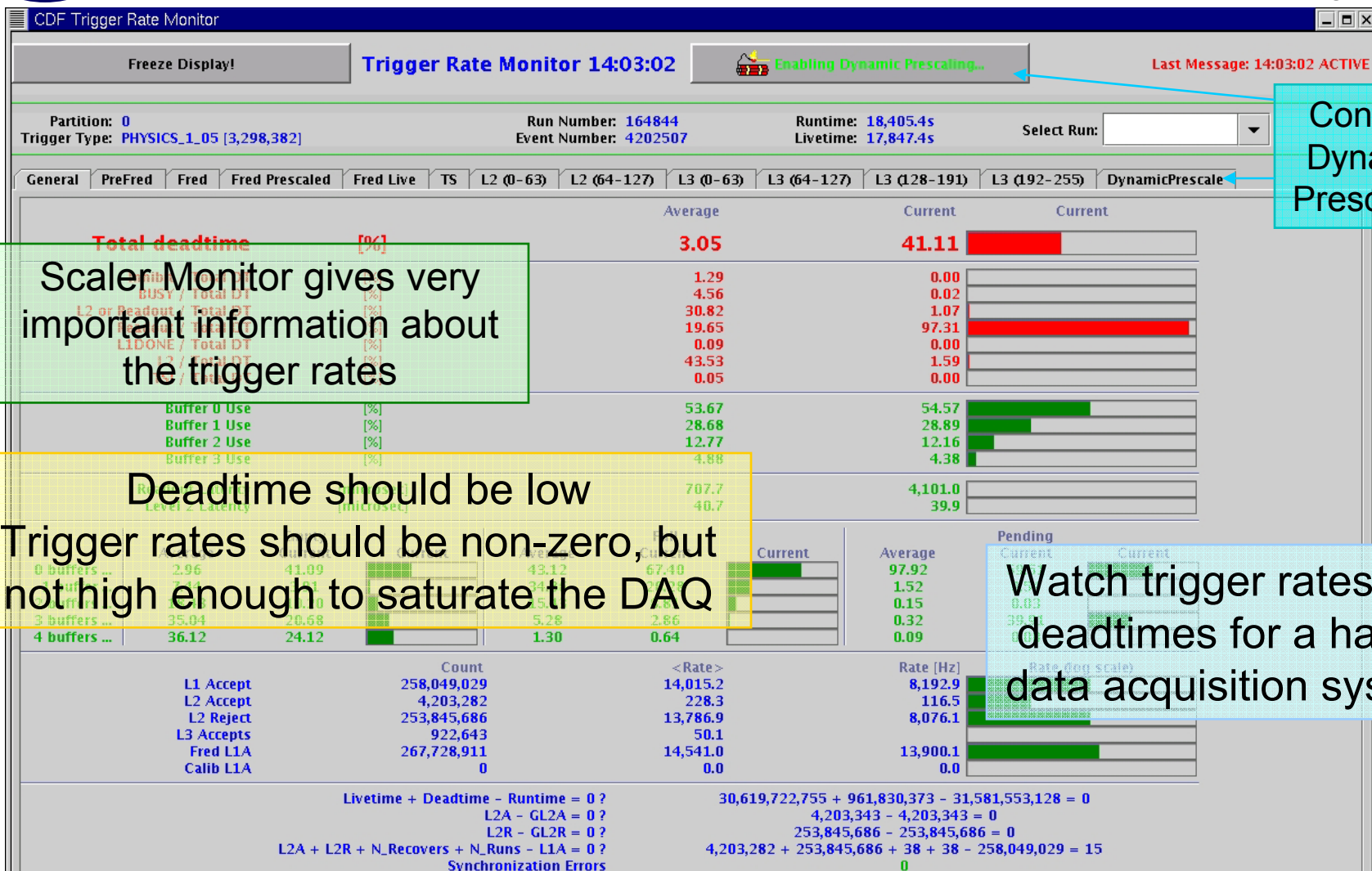
Arnd sez: "Monitoring the Front End crates is the Ace's most important job"





ScalerMonitor

W. Badgett
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09-Aug-2005

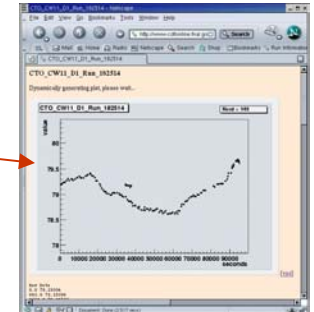
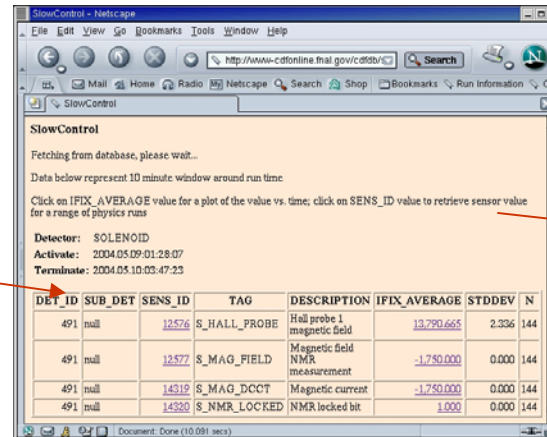
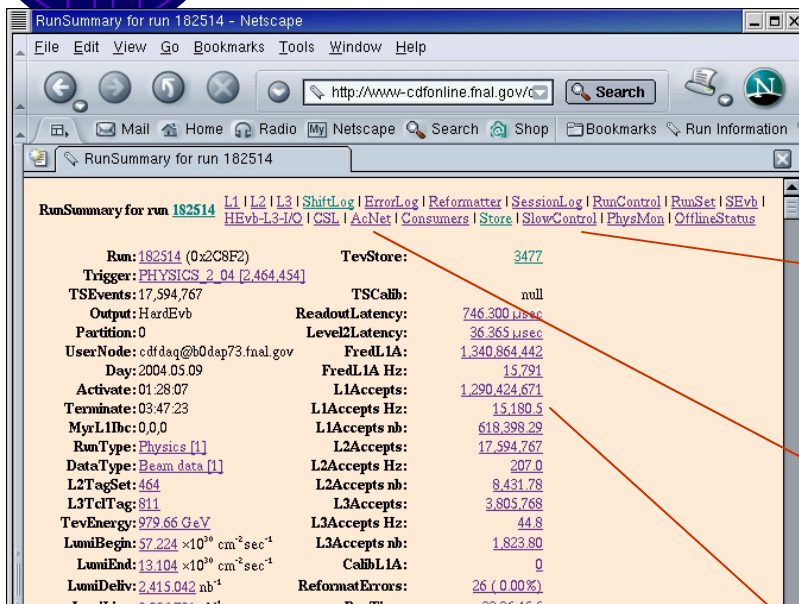


Click on TriggerScalers from <http://www-cdfonline.fnal.gov> !



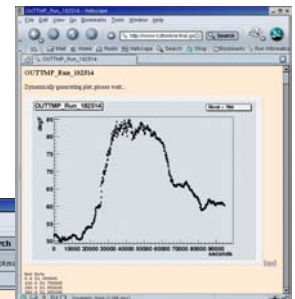
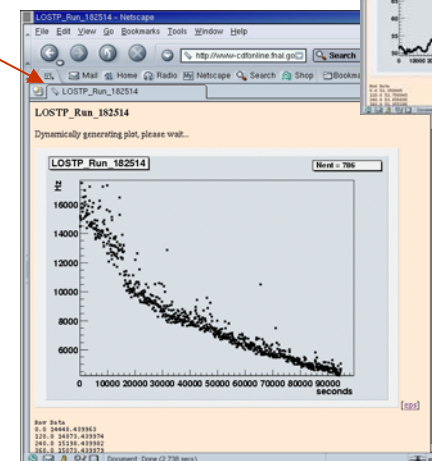
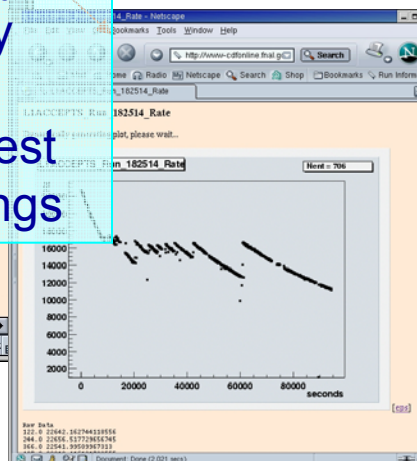
RunSummary Web Pages

W. Badgett
RunControl &
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09-Aug-2005

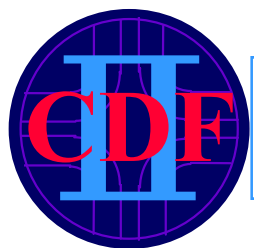


<http://www-cdfonline.fnsl.gov/>
Follow RunSum and related links

Run summary pages are dynamically produced, with almost every quantity hyper-linked, with many of the links drawing plots of the quantity of interest & links to error logs and all run settings



Root used for plotting



Useful Monitoring Shell Commands

W. Badgett
RunControl &
RunConfiguration
09-Aug-2005

First you “**setup fer**”, then from the terminal shell prompt, type:

- **rcd**
 - ✓ Starts up display of all RunControl states
 - ✓ Useful between stores when lots of experts around
 - ✓ Also launchable from RunControl File menu
 - ✓ Click on partition to get list of crates owned
- **resources**
 - ✓ Book a partition and crates without starting up RunControl
- **mapvme**
 - ✓ Map the VME bus of the specified crate controller
 - ✓ Fast, non-GUI text display
 - ✓ Argument is crate CPU, e.g. b0cot05
- **daq**
 - ✓ Bring up CDF VME card and crate control panels for specified crates
- **partition**
 - ✓ Display current status of all partitions to screen
 - ✓ Fast, non-GUI text display
 - ✓ Optional argument for specific partition will print booked resources



Conclusion

W. Badgett
RunControl &
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09-Aug1-2005

- DAQ Ace's main responsibility is operation of Run Control
- Before your shift, come to CDF control room and try out Run Control features, learn from experienced Aces and other DAQ experts
- Don't understand a feature or warning? Don't ignore! Find out! Page experts if necessary!
- Have a look at new, clickable RunControl User's Guide:
<http://www-cdfonline.fnal.gov/runControlGuide>
- Questions, comments, suggestions, complaints, send e-mail:
cdf-rc-support@fnal.gov
- Urgent problems, page DAQ/RC at 722-7579